



THE 9TH INTERNATIONAL CONFERENCE ON
SPECTROSCOPIC ELLIPSOMETRY

CONFERENCE PROGRAM & ABSTRACTS

May 22-28, 2022
Beijing, China

<http://www.icse-9.com>



SCHEDULE ICSE-9, BEIJING 2022

SUNDAY, 22ND MAY				WEDNESDAY, 25TH MAY				FRIDAY, 27TH MAY								
8:30	Registration Open			8:30	Chair: L. Li	Exhibitor Session A		8:30	Chair: D. Kim	Two Dimensional Systems	IN 13-1 Shen					
10:00	Chair: Y. Zheng	Tutorial 1 Aspnes		9:50	Coffee			8:50			Oral 13-2 Subedi					
11:00		Tutorial 2 Schubert		10:20	Chair: Y. Zhang & Z. Hu	Poster Session A		9:05			Oral 13-3 Fang					
12:00	Lunch					12:00	Lunch				9:20	Oral 13-4 Wei				
15:00	Chair: H. Ma	Tutorial 3 Ossikovski		15:00	Chair: Y. Kim		Keynote 4 Chen				9:35	Oral 13-5 He				
16:00		Tutorial 4 Darakchieva		14:00		Keynote 4 Chen		9:50			Oral 13-6 Ermolaev					
				14:40		Two Dimensional Systems	IN 8-1 Merano		10:05	Coffee						
				15:00			Oral 8-2 Ma		10:35	Chair: H. Liu	Organic & Polymer Materials	IN 14-1 Richter				
				15:15			Oral 8-3 Hartmann		10:55			Oral 14-2 Chen				
				15:30			Oral 8-4 Ermolaev		11:10			Oral 14-3 Ermolaev				
				15:45	Oral 8-5 Chen		11:25	Oral 14-4 Ogieglo								
				16:00	Coffee			11:40	Oral 14-5 Chen							
MONDAY, 23RD MAY				16:30	Chair: H. Wormeester	Imaging Ellips. & Process Monitoring	IN 9-1 Fried		11:55	Lunch						
8:00	Registration Open			16:50			Oral 9-2 Duwe		14:00	Chair: A. Viana	Bio- & Energy-Related Applications	Keynote 6 Budai				
8:30	Chair: G. Jin	Opening Ceremony		17:05			Oral 9-3 Petrik		14:40			IN 15-1 Fei				
8:50		Keynote 1 Fujiwara		17:20			Oral 9-4 Sütő		15:00			Oral 15-2 Sachse				
9:30		Keynote 2 Hofmann		17:35	Chair: L. Li	Exhibitor Session B		15:15	Oral 15-3 Huang							
10:10	Coffee					10:05	Coffee					15:30	Oral 15-4 Stchakovsky			
10:40	Chair: A. Mendoza-Galvan	Optical Modeling & Data Analysis	IN 1-1 Podraza				17:35	Coffee				15:45	Oral 15-5 Qi			
11:00			IN 1-2 Jin	16:45	Coffee			16:15	Coffee							
11:20			Oral 1-3 Sapkota		16:45			Coffee			16:45	Chair: A. Hertwig	Optical & Electronic Applications	IN 16-1 Magnozzi		
11:35			Oral 1-4 Schubert					16:55	Coffee					17:05	Oral 16-2 Almeida	
11:50			Oral 1-5 Likhachev						17:05	Coffee				17:20	Oral 16-3 Liu	
12:05			Oral 1-6 Le			THURSDAY, 26TH MAY				17:35	Oral 16-4 Bittrich					
12:20	Lunch					8:30	Chair: T. Germer			Microstructural & Interfaces Analysis	IN 10-1 Diebold			17:50	Oral 16-5 Richter	
14:00	Chair: M. Modreanu	New Instrumental Developments	IN 2-1 Furchner	8:50		Oral 10-2 Frye					18:05			Oral 16-6 Kong		
14:20			Oral 2-2 Kenaz	9:05	Oral 10-3 Subedi											
14:35			Oral 2-3 Mazaheri	9:20	Oral 10-4 Schubert											
14:50			Oral 2-4 Agocs	9:35	Oral 10-5 Tao											
15:05			Oral 2-5 Chen	9:50	Oral 10-6 Chen											
15:20			Oral 2-6 Ebner	10:05	Coffee			8:30	Chair: T. Hofmann	Keynote 7 Capasso						
15:35			Oral 2-7 Zhang	10:35	Chair: Y. Zhang & Z. Hu		Poster Session B			9:10	Anisotropic & Ferroelectric Materials	IN 17-1 Kilic				
15:50			Coffee			12:20	Lunch			9:30		Oral 17-2 Dulal				
16:20	Chair: C. Sturm	Optical Modeling & Data Analysis	IN 3-1 Franta	12:20	Lunch			9:45		Oral 17-3 Guo						
16:40			Oral 3-2 Vohánka	14:00	Chair: W. Ogieglo	Keynote 5 Alonso		10:00		Oral 17-4 Stockey						
16:55			Oral 3-3 Ohlídal	14:40		Optical & Electronic Applications	IN 11-1 Esser			10:15		Oral 17-5 Tumusange				
17:10			Oral 3-4 Marsal	15:00			Oral 11-2 Hertwig		10:30	Coffee						
17:25			Oral 3-5 Maudet	15:15			Oral 11-3 Gao		11:00	Chair: G. Jin	Closing Remarks					
17:40			Oral 3-6 Postava	15:30			Oral 11-4 Toudert									
17:55			Oral 3-7 Knight	15:45			Oral 11-5 Li									
TUESDAY, 24TH MAY				16:00			Coffee									
8:30	Chair: M. Schubert	Drude Award Ceremony	Drude Award Ceremony		16:30		Chair: E. Bittrich	Bio-Related Applications	IN 12-1 Agocs							
8:50			IN 4-1 Mock		16:50	Oral 12-2 Novikova										
9:20			IN 4-2 Gu		17:05	Oral 12-3 Romanenko										
9:50	Coffee			17:20	Oral 12-4 Basa											
10:20	Chair: J. Zapfen	New Instrumental Developments	IN 5-1 Ramella-Roman		17:35	Oral 12-5 Bugami										
10:40			Oral 5-2 Choi		17:50	Oral 12-6 Yao										
10:55			Oral 5-3 Hu		18:05	Dinner										
11:10			Oral 5-4 Wang		20:00	Chair: G. Jin	Committee Meeting (Upon Invitation)									
11:25			Oral 5-5 Hwang													
11:40			Oral 5-6 Sheng													
11:55			Oral 5-7 Tu													
12:10	Lunch															
14:00	Chair: T. Novikova	Keynote 3 Arteaga														
14:40		Mueller Matrix Ellipsometry	IN 6-1 Schiek													
15:00			Oral 6-2 Walmsness													
15:15			Oral 6-3 Lu													
15:30			Oral 6-4 Hurand													
15:45	Oral 6-5 Rosales															
16:00	Coffee															
16:30	Chair: P. Petrik	Advanced Materials	IN 7-1 Volkov													
16:50			IN 7-2 Gutierrez													
17:10			Oral 7-3 Tuménas													
17:25			Oral 7-4 Pauly													
17:40			Oral 7-5 Hurand													
17:55			Oral 7-6 Maudet													

Welcome Message

Dear colleagues and friends,

I deeply appreciated the trust and support from the international ellipsometry community who gave me the opportunity to hold the 9th international conference on spectroscopic ellipsometry (ICSE-9) in Beijing, 2022. It's a great honor for our Chinese colleagues and me. I would like to follow the tradition of ICSE like the first in Paris, 1993 to the 8th in Barcelona, 2019, with ICSE-2, Charleston, USA (1997); ICSE-3, Vienna, Austria (2003); ICSE-4, Stockholm, Sweden (2007); ICSE-V, Albany, USA (2010); ICSE-VI, Kyoto, Japan (2013); ICSE-7, Berlin, Germany (2016); which left me deep impression since it is the most influential international conference on spectroscopic ellipsometry and related techniques in the spotlight. The conference has gathered a variety of participants from many different countries to meet, to chat and to discuss each other with wide communications on the developments in the field. At the same time, we had opportunities to appreciate various culture and different scenery. My Chinese colleagues and I have planned to host the ICSE-9 to colleagues and friends in my hometown, not only for the scientific communications, but also to show specialties of Chinese culture.

The Covid-19 has been coming suddenly which made the world different. We have to reconsider how to hold ICSE-9. During the preparation period, we have continuously obtained a lot of helpful advices and suggests from international community. We have decided ICSE-9 still to be held in Beijing from the 22nd to 28th of May, 2022 in time, perhaps in both modes on-site and on-line. With the pandemic of COVID-19 and the serious travelling restrictions in China, we finally had to announce that ICSE-9 has to be switched to a fully on-line event since intense discussions in the organizing committee, to continue the well-established ICSE series as an international forum for scientists and engineers working in instrumentation, science, and applications of spectroscopic ellipsometry and related techniques. So far there are 182 scientific report abstracts accepted including 4 tutorial reports, 7 keynote reports, 20 invited reports, 75 oral reports and 76 poster reports from 29 countries. In addition, there are 6 industrial sponsors and 2 exhibitors. The on-line platform has been ready with a report area, a poster area and an exhibitor area, which could provide accesses to all conference activities. It will offer you the opportunity to present your latest results and discuss.

I would like to express my gratitude to all committee members for their continuous support, and also wish to acknowledge my Chinese colleagues for best efforts on the preparation and sponsors for generous supports. Finally, I would like to emphasize that I am very proud of holding the prestigious ICSE in Beijing and you are warmly welcome.

Best wishes,

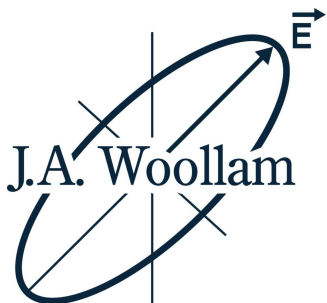
Gang Jin

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EXHIBITORS

Platinum Sponsorship



J. A. Woollam Co., Inc.
<http://www.jawoollam.com>



Wuhan Eoptics Technology Co., Ltd
<http://www.eoptics.com.cn>



Semilab Trade (Shanghai) Co., Ltd
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Exhibitor



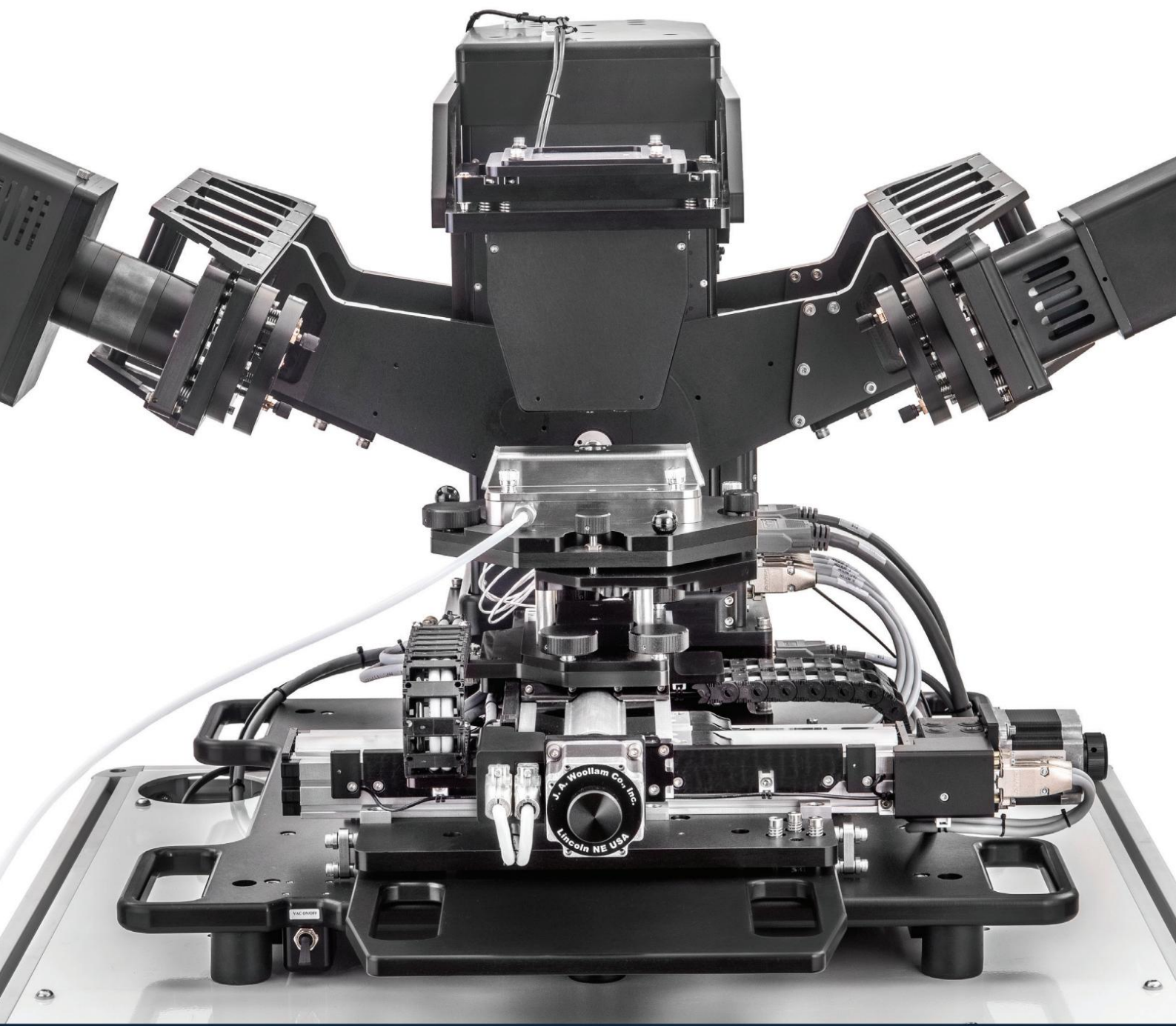
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Customized Instruments for Revolutionary Research

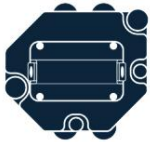
Explore your options when it comes to our industry-leading spectroscopic ellipsometers.



With over 100,000 possible configurations, our ellipsometers can be tailored to meet your research goals. Our worldwide network of representatives offer unparalleled service and support to help you get the most out of your ellipsometer. Contact us to learn more about our products and how they can be configured to meet your research needs.

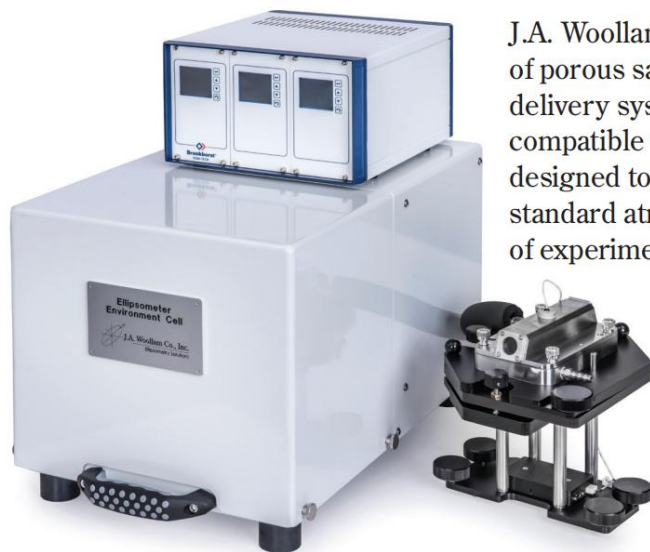


J.A. Woollam



Introducing the Environment Cell

Faster Speed. Greater Accuracy. Easier to Use.



J.A. Woollam developed the Environment Cell for characterization of porous samples. The Environment Cell features a patented vapor-delivery system to create relative pressure environments and is compatible with a wide variety of solvents. The included stage is designed to easily attach to our M-2000 and RC2 and operates under standard atmospheric conditions enabling quick setup and teardown of experiments.

Combining the capabilities of spectroscopic ellipsometry with the Environment Cell enables detection of thickness and refractive index as a function of solvent relative pressure. The integrated software calculates the adsorption isotherms, and from that, pore size distribution and pore volume for micro- and mesoporous samples.

Patented Technology

The Environment Cell features a patented algorithm to accurately control the relative pressure of the sample environment for any type of solvent. This predictive algorithm relates relative pressure to the sample temperature. This allows us to accurately calculate solvent flow rates for precise control of the relative pressure for nearly any solvent-gas mixture.

Versatile

The Environment Cell is compatible with a wide variety of solvents including water, toluene, methanol and others.

Integrated

Porosity calculations are directly integrated into CompleteEASE, our powerful software suite for ellipsometry analysis. We calculate pore volume characteristics by relating refractive index at one wavelength to pore volume using the Lorentz-Lorenz effective medium theory, which is sufficient for isotropic materials. We have also integrated our new, patented approach which takes advantage of all measured wavelengths and uses the Bruggeman effective medium approximation to relate refractive index to solvent volume. Our patented approach is typically used to analyze anisotropic or non-uniform samples. Both pore-size analysis techniques are integrated into the CompleteEASE model library.

Stage & Windows

The Environment cell is designed to quickly mount to your ellipsometer. The quick-release system allows you to switch from standard measurements to environment-based studies with relative ease. The Environment Cell uses a sealed lid with optical windows to enable measurements using unfriendly solvents in a leak-free manner. Data acquisition occurs through optical windows at 70° angle of incidence. Window birefringence effects are corrected using a patented window calibration procedure. This procedure is used any time the windows are removed and re-attached for any reason.

Contact us for more details or to schedule your free demo measurement.

www.jawoollam.com | +1 402.477.7501 | sales@jawoollam.com | Lincoln, NE, USA

光学薄膜/纳米结构测量解决方案提供商

Film/OCD Metrology Solution Supplier

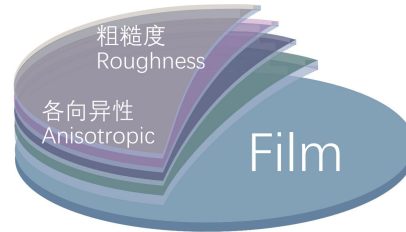
光学薄膜膜厚测量
 Film Thickness Measurement

材料光学常数测量
 Optical Constant Measurement

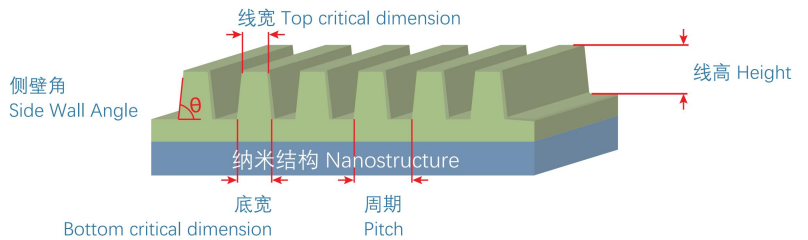
光学偏振信息测量
 State of Polarization Measurement

纳米光栅结构信息测量
 Optical Critical Dimension Measurement

膜厚
 Thickness
 带隙
 Energy Gap
 组分
 Composition



折射率
 Refractive Index
 消光系数
 Extinction Coefficient
 结晶度
 Crystallinity



ME-L 穆勒矩阵椭偏仪
 Mueller Matrix Ellipsometer



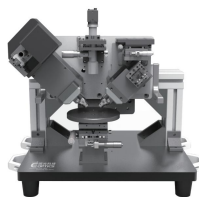
SE-VM 光谱椭偏仪
 Spectroscopic Ellipsometer



SE-VE 光谱椭偏仪
 Spectroscopic Ellipsometer



SE-m 光谱椭偏仪
 Spectroscopic Ellipsometer



Mapping 光谱椭偏仪
 Spectroscopic Ellipsometer



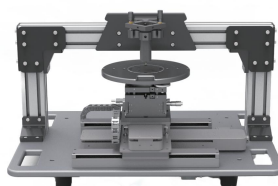
EPROFILE 膜厚/OCD测量机
 Instrument for Film/OCD



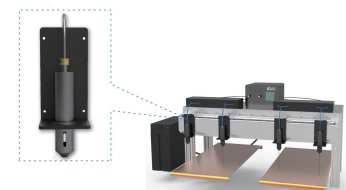
SR-C 反射膜厚仪
 Reflectometer



Mapping 反射膜厚仪
 Reflectometer



SR-i 膜厚监测系统
 Film Metrology System



新一代深紫外穆勒椭圆仪

New Generation of DUV Mueller Matrix Ellipsometer

双旋转广义穆勒矩阵椭圆仪

Dual Rotating-Compensator Mueller Matrix Ellipsometer

超微探测光斑, 精密仪器校准算法

Ultra-Micro Spot, Calibration Algorithm for Precision Instrument

自主开发机器视觉定位系统

Self-developed Machine Vision Positioning System

周期性纳米光栅无损测量表征能力

Non-destructive Grating Measurement

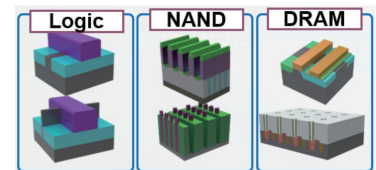
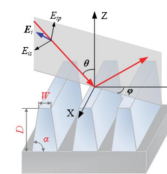
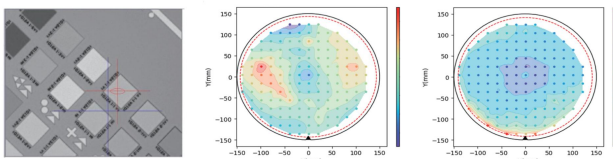


基于机器视觉精准定位Pad图形区域, 实现高效、无损检测

High Speed and Non-destructive Measurement for Bare/Patterned Wafer based on Machine Vision

实现结构周期、线宽、侧壁角、粗糙度等几何形貌信息提取

Extraction of Geometric Parameters, including Pitch, CD, Side-wall-angle, Roughness

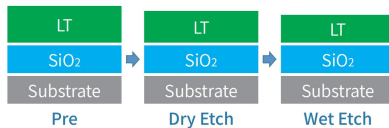


应用

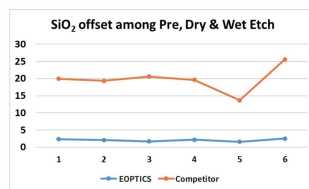
Film: 多层膜 (多工艺验证)

Multi-layer film stacks

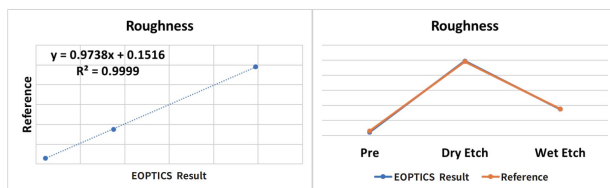
Process flow



SiO2 stability within process change



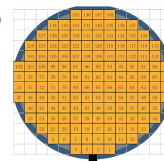
Process flow



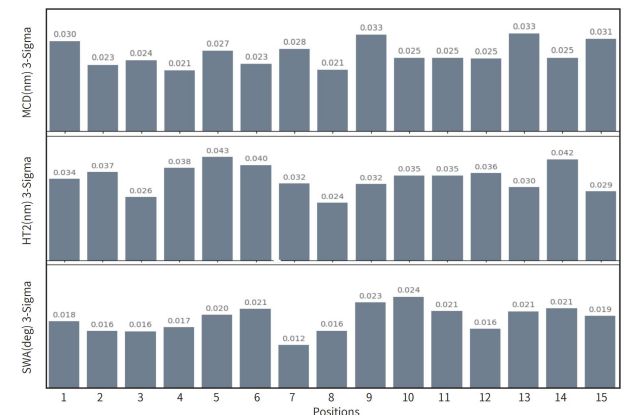
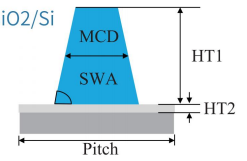
OCD : 光栅结构尺寸信息无损检测

Geometric Parameters Measurement of Grating

Wafer Map



Poly/SiO₂/Si



瑟米莱伯中国公司

SEMILAB CHINA



SEMILAB 成立于 1989 年，是一家全球领先的检测设备供应商，拥有先进的电学、光学测试技术，产品被广泛应用于光伏、半导体、平板、LED 和科学研究等领域。公司总部位于匈牙利布达佩斯，美国、中国设有研发与生产中心，在欧洲和亚洲主要国家和地区，包括法国、德国、新加坡、日本、韩国和中国台湾都设有分支机构。

自 2004 年以来，Semilab 相继收购了一系列公司和光学、电学测试技术，到目前为止已经拥有超过 150 项专利技术，成长为太阳能领域第一，半导体行业第三的纯电学测试设备供应商，给客户的产品监控和质量控制提供完整的解决方案。

Semilab 将继续结合丰富业界经验和多样的测试技术，持续为半导体、光伏、平板、LED 和科学研究领域提供高质量的测试解决方案。

SEMILAB, Semiconductor Physics Laboratory Co., Ltd. Established in 1989 is a leading supplier of state-of-the-art metrology equipments for semiconductor, photovoltaic, FPD, LED industry as well as for scientific and research institutions. Its headquarters is located in Budapest, Hungary and it possesses product R&D and production centers in the US and China, and has set up branches in France, Germany, Singapore, Japan, South Korea, Taiwan, China. Many companies have been acquired by Semilab since 2004 as follows. Today Semilab is ranking 1st in the photovoltaic industry and third in the semiconductor industry with more than 150 patents, providing a complete metrology solution for production monitoring and quality control. Semilab will continue to provide high-quality testing solutions for semiconductor, photovoltaic, flat panel, led and scientific research fields by combining rich industry experience and diverse testing technologies.

2004年：Semilab收购了SemiTest Inc.公司
 2005年：Semilab获得了IBM JPV专利
 2008年：Semilab收购了SSM Inc.半数以上股权
 2008年：Semilab收购了Sopra France公司
 2008年：Semilab从Applied Materials, Inc.收购了Boxer Cross技术
 2008年：Semilab收购了QC Solutions
 2009年：Semilab并购了AMS和SDI公司
 2010年：Semilab获得了Basler技术所有权
 2011年：Semilab收购了Tordival Solar
 2015年：Semilab收购了DME公司
 2017年：Semilab收购了Fisher-chipps laboratories公司
 2018年：Semilab收购了LEI公司

2004: Semilab acquired assets of SemiTest Inc.
 2005: Semilab acquired JPV patents from IBM Corp.
 2008: Semilab acquired majority ownership of SSM Inc.
 2008: Semilab acquired ownership of Sopra France
 2008: Semilab acquired the Boxer Cross technology from Applied Materials, Inc.
 2008: Semilab acquired ownership of QC Solutions
 2009: Semilab acquired ownership of AMS and SDI
 2010: Semilab acquired ownership of BASLER technology
 2011: Semilab acquired TORDIVEL SOLAR
 2015: Semilab acquired DME
 2017: Semilab acquired Fisher-chipps laboratories
 2018: Semilab acquired LEI



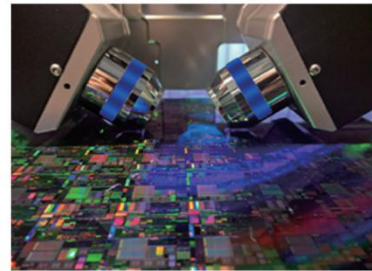
www.semilab.com

uSE (Microspot Spectroscopic Ellipsometer)

全自动微光斑椭圆偏仪

Monitoring of critical dimensions based on reflectometry and ellipsometry

基于反射谱和椭圆偏振谱,用于量测和监控关键线宽的测试技术。如TCD, BCD, MCD, Pitch, Height等量测,同时可用于检测刻蚀残留或者过刻等工艺需求。



III V

- VCSEL (AlGaAs)
- LED (GaN)
- HEMT (GaN)
- Micro LED
- Micro OLED

SEMI

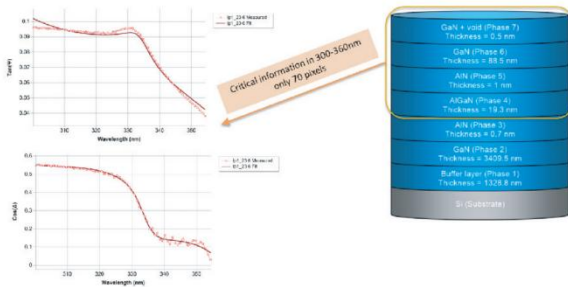
- More-Than-Moore
- MEMS
- Power IC
- Back End Of Line
- Front End Of Line

Hybrid

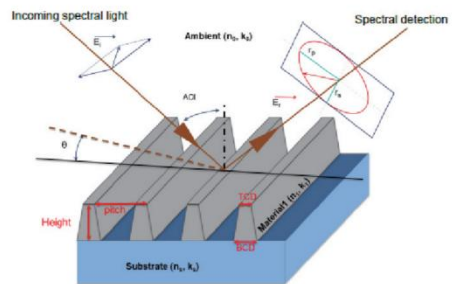
- Photoluminescence (III V)
- Raman (Local Stress)
- Bow Warp (Global Stress)
- Reflectometer (Thick layers)



UV resolution:AlGaIn application

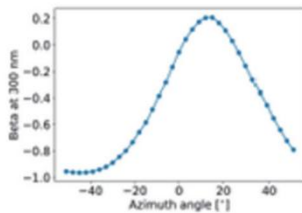


Measurement scheme

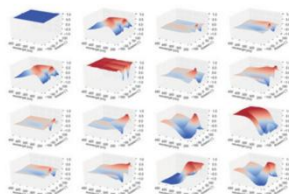


MBD测试技术 (CD量测)

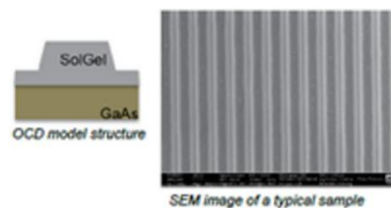
Direction of grating lines can be also be determined from SE measurement by azimuth scan of the sample.



Beta values at different azimuth rotation showing a peak when grating lines are perpendicular to the plane of incidence.



- OCD measurement is sensitive to any residual SolGel layer remaining at the bottom of the trenches after the etching process.
- Detection of residual thickness is possible:



	Pitch [nm]	Residual Thickness [nm]	Height [nm]	TCD [nm]	BCD [nm]	MCD [nm]
OCD	143.57	19.57	88.95	49.2	78.2	63.7
AFM	141.9	-	89.6	~55	~92	80.3



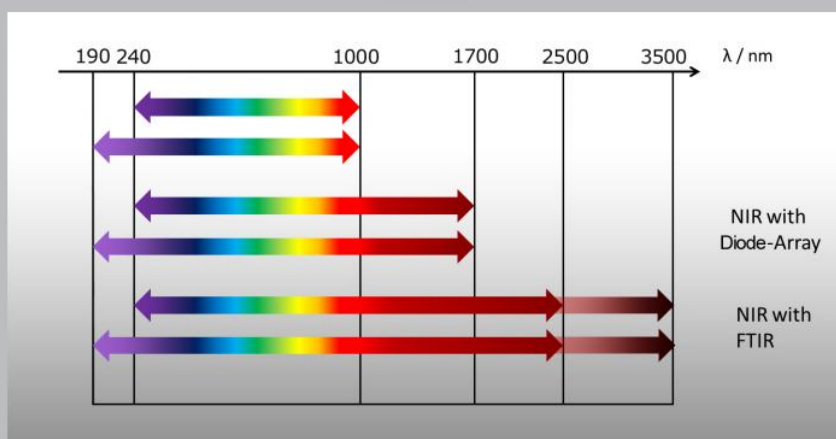
SENresearch 4.0

Spectroscopic Ellipsometer

The SENresearch 4.0 is the top of the line of the SENTECH spectroscopic ellipsometers. It is the ideal tool for thin film and material characterization from deep UV (DUV) to NIR. Every individual SENresearch 4.0 spectroscopic ellipsometer is a customer-specific configuration of spectral range, options, and field upgradable accessories.

BENEFITS AND APPLICATIONS

- The ultimate, individual solution is configured to match your application choosing from the widest spectral range, highest spectral resolution, and field upgradable accessories
- Measurement of the entire spectral range by one click
- Highly sensitive, highest resolution and low noise FTIR ellipsometry in the NIR spectral range



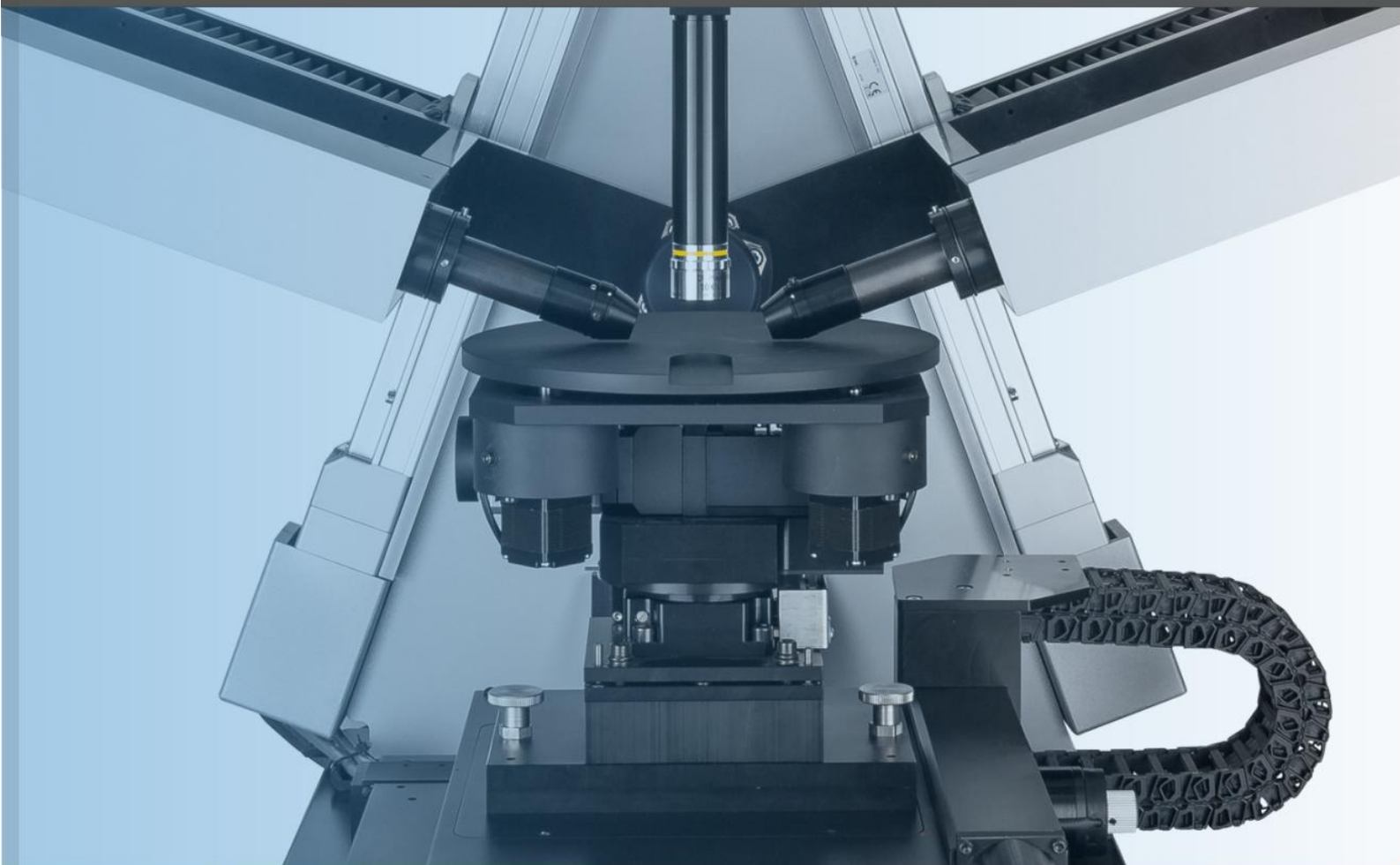
SENresearch 4.0 spectral ranges

SENresearch 4.0 Spectroscopic Ellipsometer from SENTECH

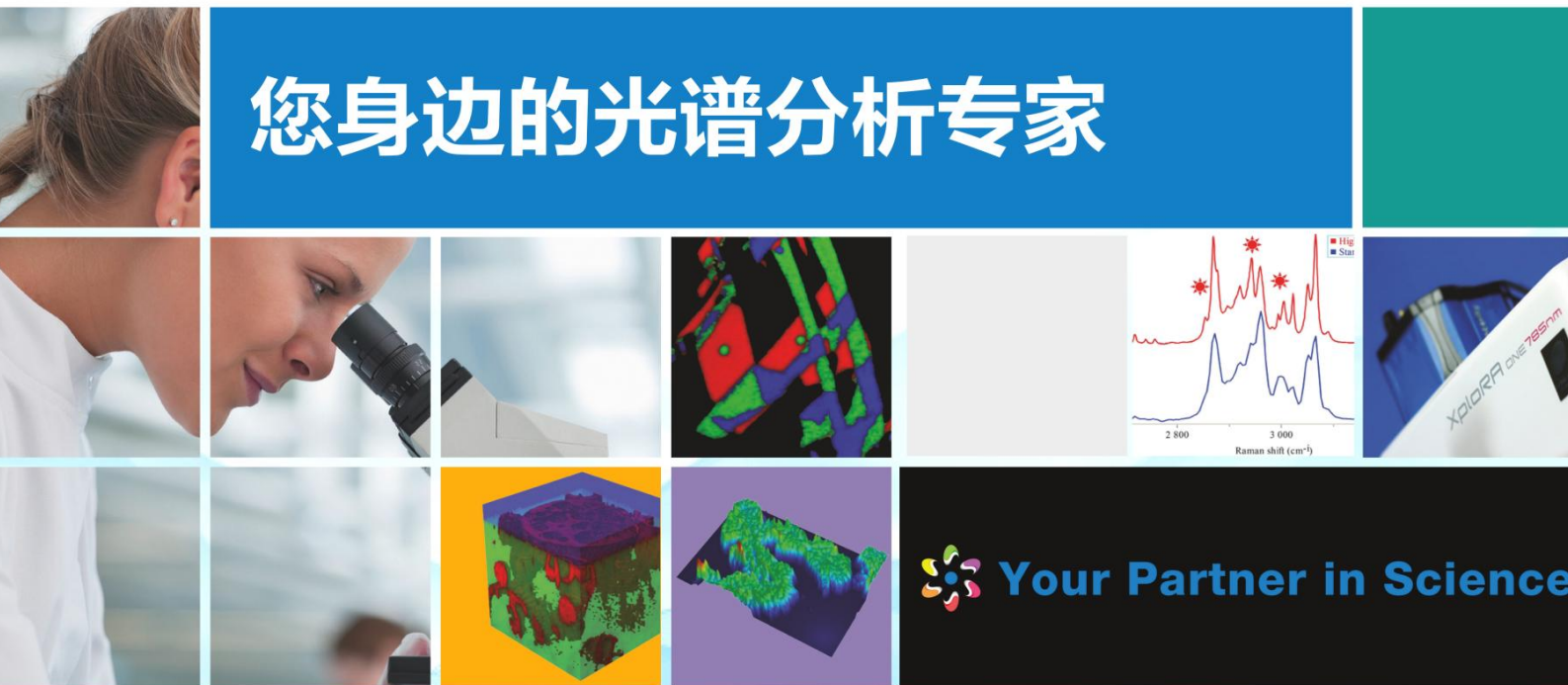
SENresearch 4.0 operates on the Step Scan Analyzer (SSA) principle. The SSA decouples the intensity measurement from mechanical movement, thereby allowing to analyze even rough samples. Utilise the fast measurement mode for mapping and in situ applications. The SSA is dedicated to fit perfectly SENTECH's goal of fast and accurate measurements of refractive index, absorption, and film thickness.

BENEFITS OF THE SENresearch 4.0

- Highly sensitive, highest resolution and low noise FTIR ellipsometry in the NIR spectral range
- Step Scan Analyzer (SSA) principle. There are no moving optical parts for best measurement results
- Full Mueller matrix by innovative 2C design
- SpectraRay/4 - comprehensive software for spectroscopic ellipsometry
- Easy operation for both, experts and beginners
- SENTECH material library and sample applications for efficient modeling



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- SPRI表面等离子体共振成像仪

元素分析

- ICP等离子体发射光谱仪
- X射线荧光光谱仪
- X射线能谱仪
- 碳硫氧氮氢分析仪
- X射线荧光硫分析仪

颗粒表征

- 颗粒分析仪

表面测量

- 椭圆偏振光谱仪
- 射频辉光放电光谱仪(GD-OES)
- 等离子体分析飞行时间质谱仪
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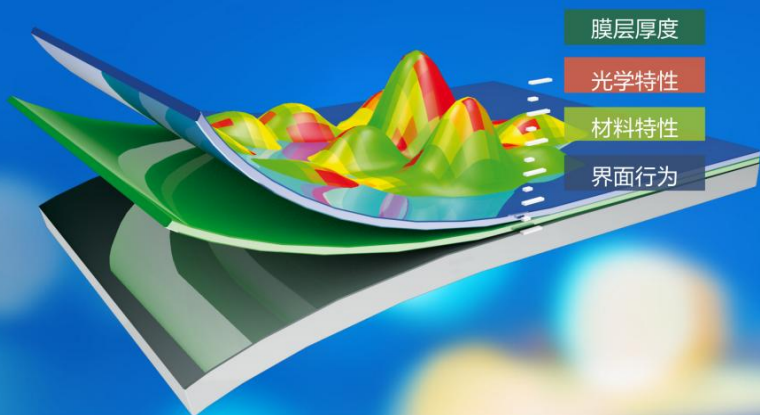
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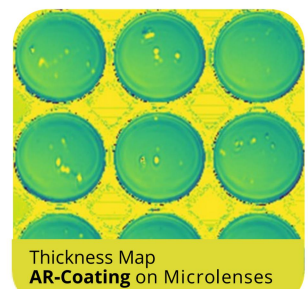
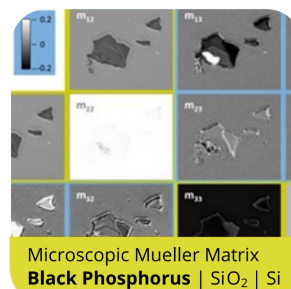
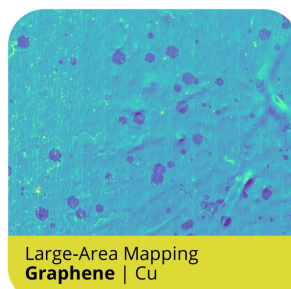
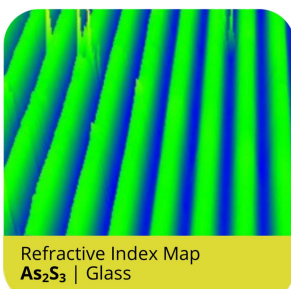
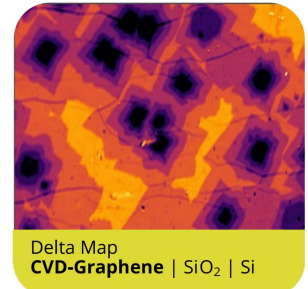
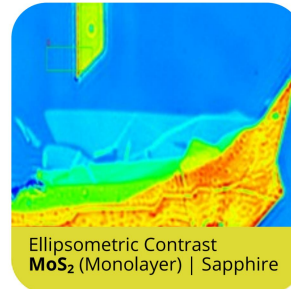
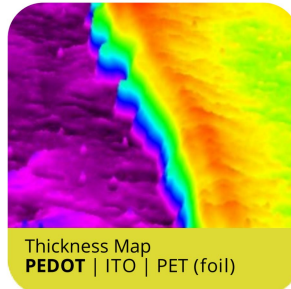
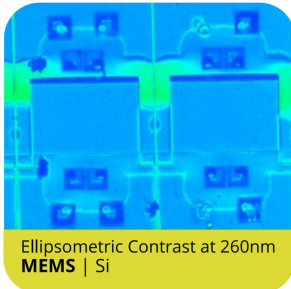
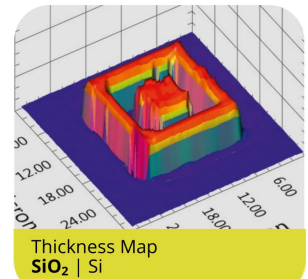
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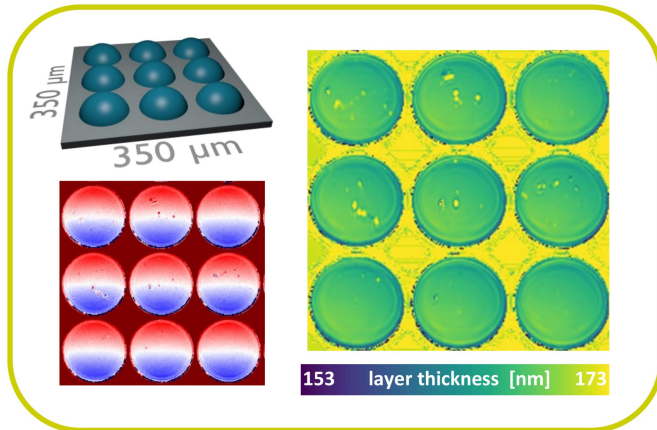


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Imaging Ellipsometry: The Microscopic View on Thickness and Optical Properties



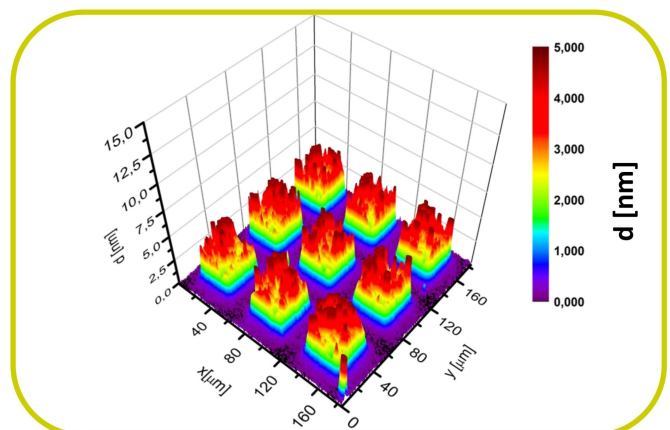
Curved Surfaces



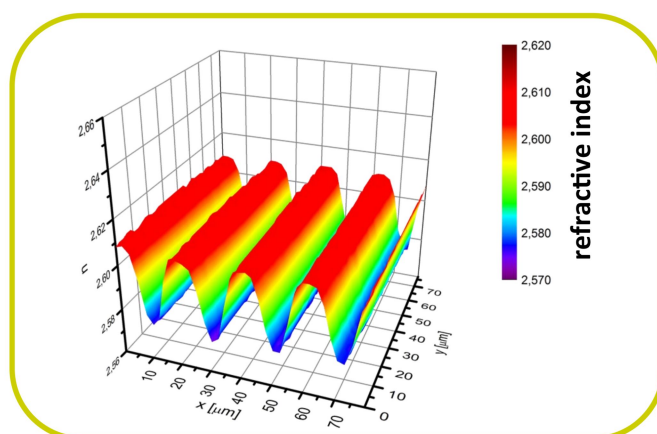
- Measure layer thickness and refractive index on curved surfaces
- Investigate anti-reflection coatings on lenses, curved mirrors and microlens arrays

- Get thickness map of micro-structured thin film layers
- Measure with sub-nanometer thickness resolution
- Perform large-area mapping by image stitching

Thickness Micromaps

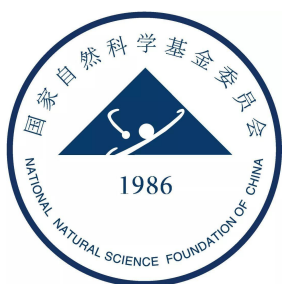


Refractive-Index Micromaps



- Determine refractive-index distribution from single-wave or spectroscopic measurements
- Create refractive-index maps of holographic gratings and waveguides
- Measure with 1 μm lateral ellipsometric resolution

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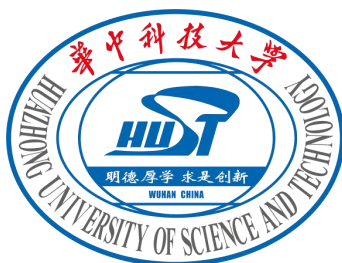
Chongqing University



East China Normal University



Yiwu Research Institute of Fudan University, Fudan University



Huazhong University of Science and Technology



Shandong University



Sun Yat-sen University



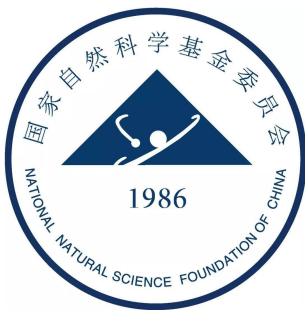
Shenzhen International Graduate School, Tsinghua University



School of Fundamental Physics and Mathematical Sciences at the Hangzhou Institute for Advanced Study (HIAS), University of Chinese Academy



School of Engineering Science (SES), University of Chinese Academy of Sciences



National Natural Science Foundation of China

The National Natural Science Foundation of China (NSFC) was established on February 14, 1986. Upon its establishment, NSFC was an institution directly under the jurisdiction of the State Council, tasked with the administration of the National Natural Science Fund from the Central Government. In 2018, it became managed by the Ministry of Science and Technology (MOST) but kept its due independence in operation.

Since its establishment, NSFC has comprehensively introduced and implemented a rigorous and objective merit-review system to fulfill its mission of supporting basic research, fostering talented researchers, developing international cooperation and promoting socioeconomic development.

The administrative system has been well developed and improved for the decision-making of the funding policy, the implementation of funding programs and the supervision of funding operation. The management system of project implementation and a complete set of regulations have been formulated.

It has gradually established its funding system focusing on the three categories of programs those include research promotion, talent fostering and infrastructure construction for basic research.

NSFC encourages international cooperation and exchange in basic research. It has signed 93 Cooperative Agreements or MoUs with partners in 49 countries and regions.

Looking ahead, NSFC will stress on the following aspects in its future development: innovative research, talents cultivation, international cooperation and management of excellence. NSFC is proud to be a key contributor to the progress and prosperity of Chinese basic research, and meanwhile grow along with it.

Main Responsibilities:

NSFC is responsible for directing, coordinating and making effective use of the national natural science fund to support basic research and stimulate free exploration, identify and foster scientific talents, as well as to promote progress in science and technology and the harmonious socioeconomic development for the nation.



Chinese Academy of Sciences

The Chinese Academy of Sciences is the linchpin of China's drive to explore and harness high technology and the natural sciences for the benefit of China and the world. Comprising a comprehensive research and development network, a merit-based learned society and a system of higher education, CAS brings together scientists and engineers from China and around the world to address both theoretical and applied problems using world-class scientific and management approaches.

Since its founding, CAS has fulfilled multiple roles — as a national team and a locomotive driving national technological innovation, a pioneer in supporting nationwide S&T development, a think tank delivering S&T advice and a community for training young S&T talent.

Now, as it responds to a nationwide call to put innovation at the heart of China's development, CAS has further defined its development strategy by emphasizing greater reliance on democratic management, openness and talent in the promotion of innovative research. With the adoption of its Innovation 2020 programme in 2011, the academy has committed to delivering breakthrough science and technology, higher caliber talent and superior scientific advice. As part of the programme, CAS has also requested that each of its institutes define its “strategic niche” — based on an overall analysis of the scientific progress and trends in their own fields both in China and abroad — in order to deploy resources more efficiently and innovate more collectively.

As it builds on its proud record, CAS aims for a bright future as one of the world's top S&T research and development organizations.





Institute of Mechanics, Chinese Academy of Sciences

Institute of Mechanics, Chinese Academy of Sciences (IMCAS) is the first national institution for mechanics research in China. It is a comprehensive and multidisciplinary national mechanics research center organized on the conception of engineering science by Professor Qian Xuesen (Hsue-Shen Tsien). Through steadfast efforts of several generations of scientists, the Institute enjoys international prestige in mechanics community. Also it makes important contributions to the economic and social development of the country. At the present, its main research directions include: micro-scale mechanics and trans-scale correlation, high-temperature gas dynamics and trans-atmosphere flight, microgravity science and its applications, key mechanical problems in oceanic engineering, environment, energy and transportation, mechanics in advanced manufacturing, biomechanics and bioengineering, etc.

Since its establishment, IMCAS has accomplished a large number of important research projects and obtained many remarkable scientific and technological achievements. The Institute has won more than 230 national and regional awards, including 1 China's Preeminent Science and Technology Award, 37 National Science and Technology Awards, as well as 24 awards from CAS and the ministries. Some important high-technology applications have been fully affirmed by national leadership.



Over 60 years of development, the Institute has not only achieved gratifying results to promoting the forefront of mechanical research and serving national strategic targets as well as developing high-tech industries, but also cultivated and transported a large number of outstanding scientific and technological talents. In this way, it makes a prominent contribution to the development of the science and technology in China.

Looking forward to the future, the Institute will persist in the conception of engineering science and focus on the key common technologies and core scientific issues of the major tasks of the country in order to promote the depth cross of mechanics and relevant disciplines and achieve the combination of the original innovation, system integration, platform construction and personnel training. It will stride forward to the objective of building the world-renowned research and education center for engineering science.



Chongqing University

Chongqing University (CQU) is a comprehensive national university in China, directly under the State Ministry of Education. It is a member of Project 211, Project 985 and Project of World-Class Universities.

CQU is located in Chongqing municipality, China. It has four campuses: campus A, B, C and D (Huxi), covering a total area of 348 hectares, with about 1.60 million square meters of construction space. Currently, CQU runs Faculty of Engineering, Faculty of the Built Environment, Faculty of Information Science, Faculty of Science, Faculty of Humanities, Faculty of Social Sciences, and Faculty of Medicine, in total 36 schools. CQU has a total number of 5,300 faculty and staff members, among which are about 2,700 full-time teachers, including 7 academicians of the Chinese Academy of Engineering, and a total number of over 47000 students, including over 20000 Masters and PhD candidates, and over 26000 Undergraduates.

CQU attaches great importance to internationalization. As one of the first universities of Demonstration base for studying abroad in China and authorized by the Ministry of Education to receive overseas students with the Chinese Government Scholarship, CQU has received over 1,800 international students, from 139 countries.

CQU is committed to making a first-class comprehensive research-oriented university in China, with unique characteristics and international fame.





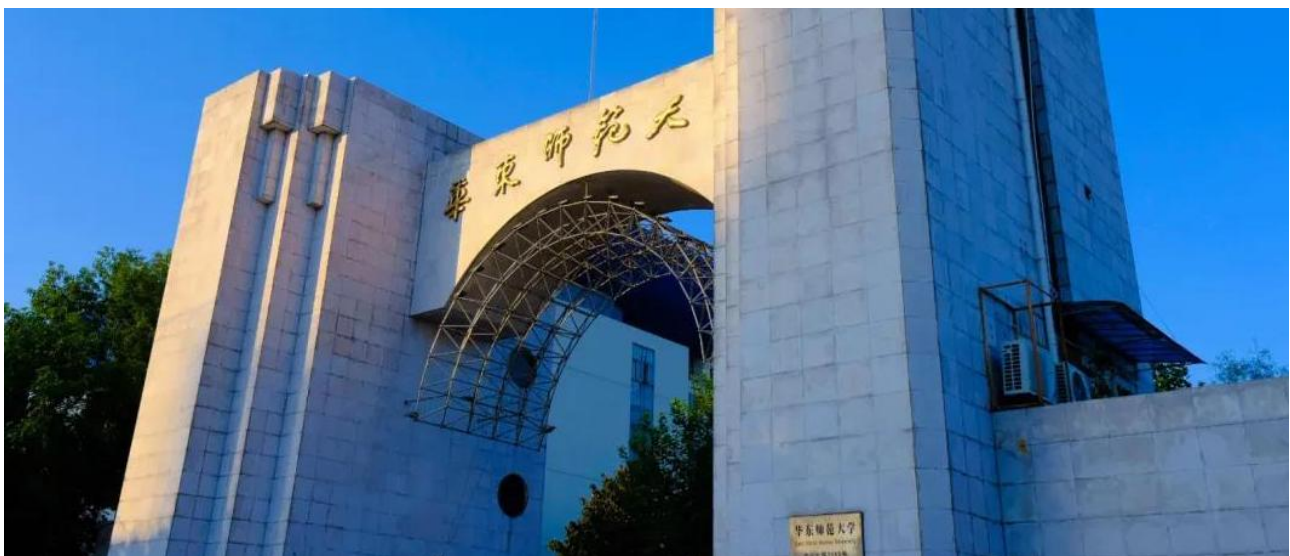
East China Normal University

Founded in Shanghai in October 1951, East China Normal University (ECNU) is one of the most prestigious universities in China sponsored by the national top university construction programs “Project 211” and “Project 985”. In 2017, ECNU was chosen as one of the 36 Class A universities on the list of Double First Class University Plan released by the central government of China.

As the first normal university established after the founding of the People's Republic of China in 1949, ECNU has attached the utmost importance to teacher training. The Ministry of Education's Training Center for Secondary School Principals located at ECNU is a unique base for the training of secondary school principals on China's Mainland and for advanced studies for secondary schools in China's Hong Kong, Macau and Taiwan.

ECNU attaches great importance to internationalization. The university has established exchange and cooperative partnerships with more than 200 internationally renowned universities and academic institutions. As one of the first Chinese universities to carry out international Chinese education, it enjoys a leading position in this field.

Adhering to the university motto of “Seek truth, foster originality, and live up to the name of a teacher”, ECNU has made great achievements in talent-training, scientific research, community service and international exchanges. It has contributed significantly to the development of Chinese basic education and teacher training, accelerated local, as well as national, economic development and promoted scientific and social growth. The development and transformation of the country and the city have offered huge opportunities to the university. ECNU is working steadily towards its goal of transforming itself into a world-class university, with a number of first-class disciplines and well-coordinated discipline development, while also leading the development of China's teacher education.





Fudan University

About FDU

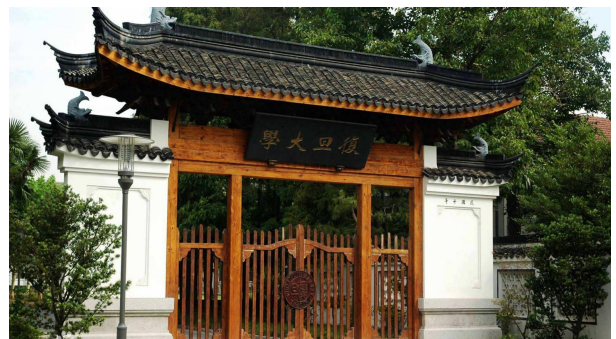
Fudan University was established in 1905 as Fudan Public School. It was the first institution of higher education to be founded by a Chinese person. The two characters, fù (“return”) and dàn (“dawn”) were borrowed from A Commentary on The Classic of History, of which the part on the Yu and the Xia dynasties mentions: “Brilliant are the sunshine and moonlight, again the morning radiance returns at dawn.” In 1917, the institution was renamed Fudan University, which has been kept ever since.

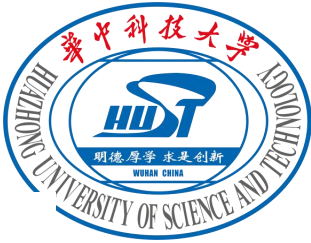
Fudan Vision

Fudan upholds the spirit of patriotism, solidarity, service, and sacrifice. Its motto is scientia et studium, quaestio et cogitatio. which means rich in knowledge and tenacious of purposes, inquiring with earnestness and reflecting with self-practice. With a time-honored tradition of academic independence and freeexploration, the University is distinguished by its academic.

Yiwu Research Institute

Launched in December 2019, Yiwu Research Institute of Fudan University is a public institution jointly built by Fudan University and Yiwu municipal government. It focuses on the research of new materials, new devices, new equipment, biotechnology and biomedical engineering, Belt and Road, global governance, and other fields.





Huazhong University of Science and Technology

Huazhong University of Science and Technology (HUST) is a comprehensive research university located in Wuhan, China under the direct supervision of the Ministry of Education. It is a participant university of the former “985” Project [1] in China, and also one of the first universities approved under the national “Double First-Class” Initiative, China’s “Excellence Initiative” for institutions of higher education.

HUST has consistently ranked among the top 10 universities in China in the major domestic and international rankings, including the Shanghai Ranking’s Academic Ranking of World Universities and US News and World Report Best Global Universities Ranking.

HUST is comprised of its main campus close by picturesque East Lake and a satellite medical campus located in the central business district of Hankou across the Yangtze River. Today the university has more than 3,400 full-time teachers, including over 1,200 professors, serving approximately 55,000 full-time students. Complementing this rich academic environment is HUST’s remarkable greenscape – covering 72% of the campus, its rich canopy of trees explains why many people now refer to it as the “university in the forest.”

HUST boasts a full range of academic disciplines, comprising 10 major categories that range from engineering and medicine - HUST’s two most notable pillars of strength – to its fast-growing science and distinctive liberal arts disciplines. Guided by its sense of mission to contribute to social progress and the greater global community, the university continues to explore the frontiers of science, and is the only university in China that includes four national research facilities. International cooperation also lies at the core of HUST development strategy.





Shandong University

Shandong University, or SDU – under the direct jurisdiction of the Ministry of Education – is a key comprehensive university with a long and honorable history, a broad variety of disciplines, strong academic strength and distinctive characteristics, which has had a great influence both at home and abroad. In 2017, the SDU was chosen as one of the first group of China's high-level universities to be listed in the double first-class university program released by the central government of China.

Shandong University is one of the initiative universities of modern Chinese higher education. Its medical school, established in 1864, signified the beginning of modern Chinese higher education. Its main body – the Shandong Imperial College (Shandong Da Xue Tang) established in 1901 – was the second national university in China, after the Imperial University of Peking. Moreover, it was the first university in China to run in accordance with a chartered constitution.

For around 120 years, SDU has been following its mission to "nurture talent for the world and seek prosperity for the nation" and living up to its motto of being "noble in spirit, endless in knowledge". The university has cultivated over 600,000 talented young people of various specialties and has been making significant contributions to the country and to regional economic and social development.





Sun Yat-sen University

Sun Yat-sen University, founded by Dr. Sun Yat-sen and with an educational tradition spanning over 100 years, is a preeminent research, academic and cultural center and the premier location for talent development in South China. Under the direct supervision of the Ministry of Education of the People's Republic of China, and strongly supported by both the Ministry and Guangdong Province, Sun Yat-sen University has developed into a modern comprehensive university that enjoys a reputation as a top-tier university nationally and a renowned university internationally. With five campuses in the three cities of Guangzhou, Zhuhai and Shenzhen, and ten affiliated hospitals, the University is striving to become a world-class university and global center of learning.

Built on a solid multidisciplinary foundation of humanities, social sciences, natural sciences, medical sciences, and engineering, Sun Yat-sen University is propelled forward by the continuous pursuit of academic innovation. The University is equipped with a globally aware outlook, and has dedicated itself to being an institution that is “comprehensive, innovative, and open”. The University adheres to the socialist orientation of higher education, focusing on the fundamental task of nurturing virtue and talents. The goal of talent cultivation is to nurture students who have both ability and moral integrity, able to cultivate charisma and eager to serve their country. The basic guiding philosophy is to be oriented toward academic frontiers, oriented toward national major strategic needs, and oriented toward national and regional economic and social development. The coordinated development of five campuses in the three cities of Guangzhou, Zhuhai and Shenzhen will jointly support the development of the entire University. The University is pushing forward the transformation from external development to internal development, the transformation from routine development to active development, and the transformation from a university with discrete advantages in humanities, social sciences, natural sciences and medical sciences to a university where humanities, social sciences, natural sciences, medical sciences and engineering can integrate and develop while retaining their distinctive characteristics. Now, standing at a new starting point, Sun Yat-sen University strives to enter both the national first-tier of universities and the ranks of world-class elite universities, building a first-class socialist university with Chinese characteristics.





Tsinghua Shenzhen International Graduate School

About SIGS

Launched in March of 2019, Tsinghua SIGS is a research and graduate education institution of Tsinghua University located in southern China. Building upon Tsinghua's academic legacy and Shenzhen's innovative resources, our students and faculty are dedicated to tackling global challenges through cutting-edge research and collaboration.

International

By diversifying faculty and student bodies, engaging in high-level collaboration with overseas partners, and internationalizing campus resources, Tsinghua SIGS will cultivate students global competencies and nurture them as future global leaders.

Borderless

By transcending boundaries between academic disciplines, industry and the surrounding community, Tsinghua SIGS will openly share resources and expertise to develop interdisciplinary solutions for global challenges beyond its physical location.

Entrepreneurial

By exploring innovative forms of pedagogy and restructuring its academic governance and administrative systems, Tsinghua SIGS will reshape graduate education that meets rapidly changing industry needs.





School of Fundamental Physics and Mathematical Sciences at the Hangzhou Institute for Advanced Study (HIAS), University of Chinese Academy of Sciences

Hangzhou Institute for Advanced Study, UCAS, is jointly organized by Hangzhou municipal government and University of Chinese Academy of Sciences (UCAS), and adjacent to the international convention and exhibition center in Yunqi town, Hangzhou.

The School of Fundamental Physics and Mathematical Sciences is one of the six schools of Hangzhou Institute for Advanced Study, UCAS, and mainly supported by the Institute of Theoretical Physics and the International Centre for Theoretical Physics Asia-Pacific (ICTP-AP), CAS. The objective of the school is to build a first-class international scientific research and academic exchange center and talent training base in the fields of gravitational wave theory and detection, black hole physics, cosmology, particle physics and nuclear astrophysics, etc.





The School of Engineering Science, University of Chinese Academy of Sciences

School of Engineering Sciences (SEng) founded in 2015 which encompasses a comprehensive range of engineering disciplines on Mechanics, Energy engineering and engineering thermophysics and Civil engineering. It comprises 7 highly specialized engineering departments to drive the education and research efforts.

The postgraduate education lasts almost 40 years in SEng, which is the predecessor of the School of Physics, Graduate School of the Chinese Academy of Sciences. The postgrad education is driven by the purpose: to be the cradle of generations of engineers and professionals in the field of engineering that have been making contribution on different fronts in the world.

The undergraduate education began from 2017 and majored in Theoretical and Applied Mechanics. Undergraduate students spend the first year of study in the school during complete the fundamental courses which cover Calculus, Computing, Physics, English Language, etc. At the end of the first year, students also have the choice to select other disciplines besides the engineering discipline, based on their preference in engineering. SEng also combines its engineering curricula with Business and Management disciplines to jointly offer bachelor's or master's degree programs.



GENERAL INFORMATION

WEBSITE <http://www.icse-9.com/>

CONFERENCE SCHEDULE

May 22nd, 2022	Tutorial
May 23rd, 2022	Opening Ceremony
May 24th, 2022	Technical Program, Paul Drude Award Ceremony
May 25th, 2022	Technical Program, Exhibitor Session, Poster
May 26th, 2022	Technical Program, Poster, Committee Meeting
May 27th, 2022	Technical Program
May 28th, 2022	Technical Program, Closing Ceremony

REGISTRATION

Registration fees

Registration Type	Registration Date			
	Early Registration		Standard Registration	
	USD	CNY	USD	CNY
Online - Regular attendee	315 USD	2,000 CNY	350 USD	2,250 CNY
Online - Student attendee	140 USD	900 CNY	175 USD	1,150 CNY

Access to live online sessions.

Access to all e-posters uploaded before and after the conference.

Access to all online sessions recorded during the conference (for 30 days after the meeting).

Connection with all delegates (chat or video) for Q&A or private meetings.

Connection with Exhibitors and Sponsors.

Admission to exhibition area and poster session.

PROCEEDINGS

Papers presented at the ICSE-9 2022 conference shall be submitted for publication in the Thin Solid Films for the Conference Collection: 9th ICSE 2022.

The papers will be peer reviewed. Accepted papers will appear online immediately after proof processing and published in the next open issue of Thin Solid Films and be grouped into the Conference Collection issue. Papers will be reviewed according to criteria set by the Thin Solid Films and must meet Thin Solid Films standards for both technical content and written English. All manuscripts will be reviewed to the same standards as regular Thin Solid Films submissions.

INFORMATION FOR PRESENTING AUTHORS

GENERAL

All presenters are requested to ensure a smooth network during the presentation and log in to the online meeting platform in advance. Authors who are unable to attend the presentation or poster presentation need contact the committee staff in advance. Unauthorized presentations, posters, etc. shall not be disseminated.

ORAL PRESENTATION

Speakers should arrive in the presentation room at least 30 minutes before their scheduled presentation. Please hand over an electronic version of your talk to the technical staff in the corresponding lecture hall at the latest during the break before your scheduled session. Please ensure compatibility with projectors before the session. The use of your own laptop is possible as an exception. Please arrange this in the break before the session with the technical staff and the session chair. Microphones and laser pointers are available in the lecture halls.

Scheduled length of talks:

Tutorial: 54 minutes + 5 minutes discussion

Keynote: 34 minutes + 5 minutes discussion

Invited: 16 minutes + 3 minutes discussion

Oral: 12 minutes + 2 minutes discussion

Time keeping is crucial to ensure the smooth operation of the entire program.

Please make sure not to overrun your allocated time.

POSTER DISPLAY

Firstly, we have arranged two poster session rooms, which are shown in the schedule (Wednesday, 25th May 10:20am for poster session A, and Thursday, 26th May 10:35 am for poster sessions B). Speakers should arrive in the presentation room at least 20 minutes before their scheduled presentation. Every speaker has 3 minutes to present research work in sequence.

Secondly, you can upload your presentation files online in the poster sessions. And you can communicate with attendees here by text or video one-on-one.

PAUL DRUDE AWARD

This prestigious ICSE Award is named in honor of the physicist Paul Karl Ludwig Drude (1863-1906), a pioneer of ellipsometry. Reflecting Drude's oeuvre related to the electron-conductivity model, emphasis is placed on spectroscopically determining and understanding the interaction of light with matter. The Award is given to young scientists who has made outstanding contributions to the development and application of spectroscopic ellipsometry.

The ICSE-9 Paul Drude Award will be split. Two winners have been selected in equal first place by the Selection Committee, composed by members from the Honorary, Advisory, and Organizing Committees. The Paul Drude Award consist of a certificate, a prism, and a monetary price of 1000 EUR. For ICSE-9, the Award is sponsored by Wuhan Eoptics Technology Co. Ltd.

The Award winners are:

Honggang Gu

Dr. Honggang Gu is currently an assistant professor at Huazhong University of Science and Technology, Wuhan, China. He receives the ICSE-9 Paul Drude Award for his contribution to the development of advanced Mueller matrix ellipsometry (MME), such as broadband MME based on dual rotating multi-waveplates with flexibly oriented axes and imaging MME with sub-micro resolution based on back focal plane scanning. He has also made very impressive pioneering explorations to promote the application of SE in emerging 2D materials and organic semiconductors.

Alyssa Mock

Dr. Alyssa Mock is currently an assistant professor at Weber State University, Ogden, Utah, USA. She receives the ICSE-9 Paul Drude Award for her pioneering work on generalized ellipsometric analysis of ultra-wide bandgap metal oxides with low-crystal symmetry. She has also worked to uncover the stress and strain relationships within low symmetry materials to provide a pathway to use ellipsometry in understanding of how these low symmetry materials behave under the influence of perturbations due to strain or stress.

Previous Paul Drude Award winners and institutions

2007 Peter Petrik (Research centre for Natural Sciences, Hungary)

2010 Tino Hofmann (University of Nebraska-Lincoln, United States)

2013 Vanya Darakchieva (Linköping University, Sweden)

2016 Oriol Arteaga (University of Barcelona, Spain)

2016 Christoph Cobet (Johannes Kepler University, Austria)

2019 Eva Bittrich (Scientist at Leibniz Institute of Polymer Research Dresden, Germany)

2019 Chris Sturm (University of Leipzig, Germany)

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TUTORIAL LECTURES

Filtering Spectra by Linear and Nonlinear Methods

David Erik Aspnes, Physics, North Carolina State University, Raleigh, North Carolina, United States

David Erik Aspnes received his PhD in 1965 from the University of Illinois-Urbana/Champaign (UIUC). Following a year as a postdoctoral research associate at UIUC and another at Brown University, he joined Bell Laboratories, Murray Hill, as a member of the technical staff. In 1984, he became Head of the Interface Physics Department of the Bellcore, the part of Bell Laboratories that went with the operating companies in the AT&T divestiture. He joined NC State University as a Professor of Physics in 1992, and was named Distinguished University Professor of Physics in 1999.

Ellipsometry and the intriguing physics of low symmetry materials

Mathias Schubert, Department of Electrical and Computer Engineering, University of Nebraska-Lincoln, Nebraska, United States

Mathias Schubert received Dipl.-Phys., Dr. rer. nat., and Dr. habil. (Physics) degrees from the University of Leipzig, Leipzig, Germany, in 1994, 1997, and 2003, respectively. He received an honorary title Dr. tech. h.c. from Linköping University, Sweden, in 2015. He became associate professor and full professor at the University of Nebraska, Lincoln, United States, in 2005 and 2012, respectively. He currently holds the J. A. Woollam Distinguished Professorship Chair, and a Guest Professorship from Linköping University since 2016. He is also an associate editor of Applied Physics Letters.

Phenomenological interpretation of Mueller matrix polarimetry results: theory and experiment

Razvigor Ossikovski, CNRS, Ecole Polytechnique, Université Paris-Saclay, Palaiseau, France

Razvigor Ossikovski received his PhD in 1995 from Ecole Polytechnique, France. He likewise held an Engineer's degree (1991) from Rousse Polytechnic, Bulgaria. He held R&D engineer and team leader positions at the companies HORIBA Jobin Yvon, Corning Inc. and HighWave Optical (1995-2003) before taking his current academic position as, first, assistant professor (2003) and, after his habilitation, as associate professor (2010) and full professor (2018) at the Ecole Polytechnique, LPICM (Laboratory of Physics of Interfaces and Thin Films). He is also a topical editor of Optics Letters (Polarization). He has authored or co-authored five patents, two books, four book-chapters and more than 200 publications.

When spectroscopic ellipsometry goes Terahertz

Vanya Darakchieva, NanoLund and Solid State Physics, Lund University, Sweden and THz Materials Analysis Center and Center for III-Nitride Technology, C3NiT-Janzen, Linköping University, Sweden

Vanya Darakchieva received her PhD in 2004 from Linköping University, Sweden. She held a visiting senior researcher position at Instituto Tecnológico e Nuclear (ITN) (2008-2010). After that, she became a vinnmer fellow from 2011 at University of Nebraska-Lincoln and J.A.Woollom. Meanwhile, she became assistant professor and permanent associate professor at Linköping University in 2006 and 2012, respectively. Then, she has become full professor at both Linköping University and Lund University. She was also the winner of Paul Drude Award in 2013.

KEYNOTE LECTURES

Future of Spectroscopic Ellipsometry: Automated Analyses and Theoretical Interpretation

Hiroyuki Fujiwara, Department of Electrical, Electronic and Computer Engineering, Gifu University, Gifu, Japan

Hiroyuki Fujiwara is a Professor in Department of Electrical, Electronic and Computer Engineering, Gifu University. He received the PhD degree from Tokyo Institute of Technology. He was a research associate at The Pennsylvania State University during 1996-1998. In 1998, he joined Electrotechnical laboratory, Ministry of International Trade and Industry, Japan. In 2007, he became a team leader of Research Center of Photovoltaics, National Institute of Advanced Industrial Science and Technology (AIST) in Japan.

Ellipsometry of Additively Manufactured Optical Materials

Tino Hofmann, Department of Physics and Optical Science, University of North Carolina at Charlotte, United States

Tino Hofmann is an assistant professor in the Physics and Optical Science Department of the University of North Carolina in Charlotte. He received Dr. rer. nat. in Physics from the University Leipzig in 2004. Before joining UNCC, he worked as a post-Doctoral student and later research assistant professor in the group of Dr. Schubert at the University of Nebraska-Lincoln where he was working on the design and construction of the world's first frequency-domain THz Mueller matrix ellipsometer and a THz-MIR optical Hall effect instrument. He was the winner of 2014 EU Marie Curie Fellowship. Dr. Hofmann has authored and co-authored over 130 peer-reviewed, technical publications, several books and book chapters, and 18 U. S. and E. U. patents.

Exploring the sensitivity limits of a Mueller matrix ellipsometer. The spatial dispersion of Si

Oriol Arteaga, Departament de Física Aplicada, Universitat de Barcelona, Barcelona, Spain

Oriol Arteaga is a Ramón y Cajal Fellow at the Department of Applied Physics of University de Barcelona. Prior to that, he has been Marie Curie fellow at École Polytechnique and also at Universitat de Barcelona. He received his PhD degree in physics at Universitat de Barcelona. He was a postdoctoral researcher at New York University, United States, and École Polytechnique, France. He is also a topical editor of Applied Optics. His research interests are related to the study of the polarized light and the optical characterization of materials.

Research and development of spectroscopic ellipsometry with challenge of future in China

Liang-Yao Chen, Department of Optical Science and Engineering, Fudan University, Shanghai, China

Liang-Yao Chen received the PhD degree in the physics department of Iowa State University in 1987, and worked as the post-doctor in the Ames National Laboratory of United States and the department of electric engineering of Nebraska University in 1988-1990. He returned to in Fudan University in 1990, and worked as the vice chairman of the physics department and the dean of school of information science and engineering. He was appointed as the chair and honored professor in 1997 and 2004, respectively. He received the distinguished young research funding support awarded by NSFC in 1994 and was honored of "Yang zhi Professor" in 1999. More than 200 referred research papers were published, over 100 presentations were given with more than 10 patents approved and many awards received in past years.

Optical characterization of photonic architectures fabricated by soft lithography

Maria Isabel Alonso, Institut de Ciència de Materials de Barcelona, ICMAB-CSIC, Bellaterra, Catalonia, Spain

Maria Isabel Alonso is senior scientist and department head at ICMAB-CSIC. She is a materials physicist interested in semiconducting structures (inorganic, organic, and hybrid) that can contribute to expand the development of modern optoelectronic, energy-related, and sensing devices. Her core expertise is the MBE growth of SiGe structures and the use of optical spectroscopy, mainly ellipsometry, Raman scattering, and photoluminescence. She received her PhD degrees from Autonomous University of Barcelona and Max Planck Institute for Solid State Research in 1984 and 1990, respectively. Then, she worked as a post-doctoral in Spanish National Research Council in 1990-1992 and a visiting scientist in Paul Drude Institute for Solid State Electronics in 1992-1994. Dr. Alonso has authored and co-authored over 187 peer-reviewed, technical publications.

Ellipsometry giving insight into plasmonic electron distributions

Judit Budai, Ultrafast Science and Application Division, ELI-HU Non-Profit Ltd., Szeged, Csong-rád-Csanád megye, Hungary

Judit Budai has more than a decade experience in the field of ellipsometry with 30 publications related to the technique. After earning her PhD in 2008, she worked at the University of Szeged, where, spectroscopic ellipsometry was her main scientific field. She participated in the development of two ultrafast ellipsometer setups and co-supervised two PhD students in the field of ellipsometry. In 2015 she joined the growing team of ELI-ALPS Research Institute as the member of the Ultrafast Nanoscience Group. Since then her research field includes nanoplasmonic modelling, fabrication of nanopatterned samples and performing ultrafast probing of these model systems. Beside her work at ELI-ALPS, she has teaching duties at the University of Szeged, her aim is to show students is that physics - against the rumours - is not difficult.

Future of Spectroscopic Ellipsometry: Automated Analyses and Theoretical Interpretation

Federico Capasso, Harvard University, Cambridge, Boston MA, United States

Federico Capasso is the Robert Wallace Professor of Applied Physics at Harvard University, which he joined in 2003 after a twenty-seven-year career at Bell Labs from postdoc to Physical Research VP. Highlights of his research are bandgap engineering of heterostructure materials and devices, including the invention of the quantum cascade laser, metasurface based flat optics, MEMS based on the Casimir effect and the first measurement of the repulsive Casimir force. He is a member of the National Academy of Sciences, the National Academy of Engineering and the American Academy of Arts and Sciences. His awards include the Yves Medal/Jarus Quinn Prize of Optica, the Balzan Prize for Applied Photonics, the King Faisal Prize, the American Physical Society Arthur Schawlow Prize, the IEEE Edison Medal, the Franklin Medal, the Materials Research Society Medal and the Enrico Fermi prize.

INVITED SPEAKERS

The Growing Ellipsometry Toolbox for Photovoltaics

Nikolas Podraza, Physics and Astronomy, University of Toledo, Toledo, Ohio, United States

Reflection and Transmission Ellipso-Microscopy

Lianhua Jin, Faculty of Engineering, University of Yamanashi, Kofu, Yamanashi, Japan

Recent Advances in Infrared Ellipsometry

Andreas Furchner, Division Energy and Information, Helmholtz-Zentrum Berlin für Materialien und Energie, 12489, Berlin, Germany

Dispersion models exhibiting spatial dispersion

Daniel Franta, Department of Physical Electronics, Masaryk University, Brno, Moravia, Czech Republic

Strain and stress relationships for optical phonon modes in materials with low crystal symmetry

Alyssa Lynn Mock, Electrical and Computer Engineering, Weber State University, Ogden, Utah, United States

Advanced spectroscopic ellipsometry for 2D materials

Honggang Gu, School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, China

Mueller Matrix imaging of the uterine cervix for non-invasive and label-free assessment of preterm labor risk

Jessica Ramella-Roman, Biomedical Engineering, Florida International University, Miami, Florida, United States

(Imaging) Mueller Matrix Ellipsometry & Polarimetry for Textured Anisotropic and Chiral Organic Thin Films

Manuela Schiek, LIOS & ZONA, Johannes Kepler University of Linz, Linz, Upper Austria, Austria

Giant anisotropy for next-generation nanophotonics

Valentyn Volkov, Center for Photonics and 2D Materials, Moscow Institute of Physics and Technology (MIPT), Dolgoprudny, Moscow Region, Russia

Characterizing Novel Phase-Change Materials with Imaging Spectroscopic Ellipsometry and Imaging Polarimetry

Yael Gutierrez, Institute of Nanotechnology, CNR NANOTEC, via Orabona 4, 70126 Bari, Italy.

Measurement of the out-of-plane susceptibility of atomically thin crystals

Michele Merano, Dipartimento di Fisica e Astronomia, Università degli studi di Padova, Padova, Italy

In-situ measurement of changing complex dielectric function of ion implanted amorphous silicon during annealing by spectroscopic ellipsometry

Miklos Fried, Photonics, Institute of Technical Physics and Materials Science, Centre for Energy Research, Budapest XII., Hungary

Determination of Nanostructure Shape and Dimension using Mueller Matrix Spectroscopic Ellipsometry

Alain Charles Diebold, College of Nanoscale Science and Engineering, SUNY Polytechnic Institute, Albany, New York, United States

Ellipsometry with Synchrotron Radiation in the VIS-VUV-Spectral Range: Instrumentation, Applications and Perspectives

Norbert Esser, Institut für Festkörperphysik, Technische Universität Berlin, Berlin, Germany

Bacteria detection in the Kretschmann geometry flow cell on plasmon-enhanced interface with spectroscopic ellipsometer

Emil Agocs, Cluster of Excellence PhoenixD, Leibniz University Hannover, Hannover, Lower Saxony, Germany and Institut für Hochfrequenztechnik, Technische Universität Braunschweig, Braunschweig, Lower Saxony, Germany

Characterizing and regulating the optical anisotropy of low-symmetry 2D materials

Wanfu Shen, State Key Laboratory of Precision Measuring Technology and Instruments, Tianjin University, Tianjin, and Nanchang Institute for Microtechnology, Tianjin University, Tianjin, China

Non-destructive Depth Profiling of Organic Electronic Functional Films

Lee J. Richter, Materials Science and Engineering Division, National Institute of Standards and Technology, Gaithersburg, Maryland, United States

Screening of ATTECs for mHTT by high-throughput screening platform based on label-free detection of small-molecule microarray

Yiyang Fei, Department of Optical Science and Engineering, Fudan University, Shanghai, Shanghai, China

Probing the local excitonic properties of monolayer WS₂ flakes with imaging ellipsometry

Michele Magnozzi, Physics Department, Università di Genova, Genova, Italy

Extremely broadband plasmonic chiroptical activity revealed by heterostructure helical metamaterial

Ufuk Kilic, Electrical and Computer Engineering, University of Nebraska Lincoln, Lincoln, Nebraska, United States

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08:30-10:00 **Registration****Tutorial Session I**

Sunday 10:00-12:00

Chair: Yuxiang Zheng

Zoom1

Tutorial 1 **Filtering Spectra by Linear and Nonlinear Methods**

10:00-11:00 David Erik Aspnes

*Physics, North Carolina State University, Raleigh, North Carolina, United States.....79*Tutorial 2 **Ellipsometry and the intriguing physics of low symmetry materials**

11:00-12:00 Mathias Schubert

*Department of Electrical and Computer Engineering, University of Nebraska-Lincoln, Nebraska, United States.....80***Tutorial Session II**

Sunday 15:00-16:00

Chair: Hui Ma

Zoom1

Tutorial 3 **Phenomenological interpretation of Mueller matrix polarimetry results: theory and experiment**

15:00-16:00

Razvigor Ossikovski

*LPICM, Ecole Polytechnique, Palaiseau, Essonne, France.....81*Tutorial 4 **When spectroscopic ellipsometry goes Terahertz**16:00-17:00 Vanya Darakchieva^{1, 2*}¹*NanoLund and Solid State Physics, Lund University, 22100 Lund, Sweden*²*THz Materials Analysis Center (TheMAC) and Center for III-nitride Technology, C3NiT-Janzen, Linköping University, 581 83 Linköping, Sweden.....82*

08:00-08:30 **Registration**08:30-08:50 **Opening Ceremony**

Chair: Gang Jin

Keynote 1 **Future of Spectroscopic Ellipsometry: Automated Analyses and Theoretical Interpretation**

Monday 08:50-10:10

Zoom 1

Hiroyuki Fujiwara

Chair: Gang Jin

*Department of Electrical, Electronic and Computer Engineering, Gifu University, Gifu, Japan.....83*Keynote 2 **Ellipsometry of Additively Manufactured Optical Materials**

Tino Hofmann

Department of Physics and Optical Science, University of North Carolina at Charlotte, United States.....84

10:10-10:40 Coffee

Session 1 Optical Modeling & Data Analysis

Monday 10:40-12:20

Chair: Arturo Mendoza Galván; Co-Chair: Hao Jiang

Zoom 1

Invited 1-1 **The Growing Ellipsometry Toolbox for Photovoltaics**10:40-11:00 Nikolas Podraza¹, Biwas Subedi²¹*Physics and Astronomy, University of Toledo, Toledo, Ohio, United States*²*Wright Center for Photovoltaics Innovation & Commercialization, University of Toledo, Toledo, Ohio, United States.....85*Invited 1-2 **Reflection and Transmission Ellipso-Microscopy**11:00-11:20 Lianhua Jin^{1*}, Sota Mogi¹, Tsutomu Muranaka¹, Eiichi Kondoh¹, Bernard Gelloz²¹*Faculty of Engineering, University of Yamanashi, Kofu, Yamanashi, Japan*²*Graduate School of Science, Nagoya University, Nagoya, Aichi, Japan.....86*Oral 1-3 **Real Time Spectroscopic Ellipsometry for Flux Calibrations in Multisource Co-evaporation of Thin Films**

11:20-11:35

Dhurba R Sapkota, Puja Pradhan, Ambalanath Shan, Balaji Ramanujam, Nikolas Podraza, Robert W Collins

*Department of Physics and Astronomy and Wright Center for Photovoltaics Innovation and Commercialization, The University of Toledo, Toledo, Ohio, United States.....87*Oral 1-4 **Phonons and band-to-band transitions in zinc gallate - a combined density functional theory and ellipsometry approach**

11:35-11:50

Matthew Hilfiker^{1*}, Megan Stokey¹, Rafal Korlacki¹, Ufuk Kilic¹, Emma Williams¹, Sema Kilic¹, Alyssa Mock², Sean Knight³, Zbigniew Galazka⁴, Klaus Irscher⁴, Stefan Zollner⁵, Vanya Darakchieva³, Mathias Schubert^{1,3,6}¹*Electrical and Computer Engineering, University of Nebraska Lincoln, Lincoln, Nebraska, United States*²*Electrical and Computer Engineering, Weber State University, Ogden, Utah, United States*³*Physics, Chemistry and Biology, Linköping University, Linköping, Östergötland, Sweden*

⁴Volume Crystals, Leibniz-Institut für Kristallzucht, Berlin, Brandenburg, Germany

⁵Physics, New Mexico State University, Las Cruces, New Mexico, United States

⁶Nanostructured Materials, Leibniz-Institut für Polymerforschung e.V., Dresden, Saxony, Germany.....88

Oral 1-5 **On the optimal dielectric-function representation by B-splines in the spectroscopic ellipsometry data analysis context**

11:50-12:05

Dmitriy V Likhachev

Manufacturing Inline Control (MIC), GlobalFoundries, Dresden, Saxony, Germany.....89

Oral 1-6 **Maximum-entropy analysis – a direct- and reciprocal-space comparison**

12:05-12:20 Long Van Le¹, Young Dong Kim^{2*}, David Aspnes³

¹Institute of Materials Science, Vietnam Academy of Science and Technology, Hanoi, Vietnam

²Department of Physics, Kyung Hee University, Seoul, Korea, South

³Department of Physics, North Carolina State University, Raleigh, North Carolina, United States.....90

12:20-14:00 Lunch

Session 2 New Instrumental Developments Monday 14:00-15:50
Chair: Mircea Modreanu; Co-Chair: Chunguang Hu Zoom 1

Invited 2-1 **Recent Advances in Infrared Ellipsometry**

14:00-14:20 Andreas Furchner^{1*}, Karsten Hinrichs²

¹Division Energy and Information, Helmholtz-Zentrum Berlin für Materialien und Energie, 12489, Berlin, Germany

²Interface Analytics Department Berlin, Leibniz-Institut für Analytische Wissenschaften– ISAS–e.V., 12489, Berlin, Germany.....91

Oral 2-2 **Single-shot angle-resolved spectroscopic micro-ellipsometry**

14:20-14:35 Ralfy Kenaz, Ronen Rapaport

Racah Institute of Physics, Hebrew University of Jerusalem, Jerusalem, Israel, Israel.....92

Oral 2-3 **Accurate THz Ellipsometric Measurements Using a Customized Time-Domain System**

14:35-14:50

Zahra Mazaheri, Can Koral, Antonello Andreone

Physics, Federico II University of Naples, Naples, Campania, Italy.....93

Oral 2-4 **Electro-optic phase modulator based spectroscopic ellipsometer with millisecond time resolution**

14:50-15:05

Emil Agocs^{1,2}, Vishal Nathani³, Harsh Jivani³, Axel Günther^{1,2}, Hans-Hermann Johannes², Bernhard Roth^{1,3}, Wolfgang Kowalsky^{1,2*}

¹Cluster of Excellence PhoenixD, Leibniz University Hannover, Hannover, Lower Saxony, Germany

²Institut für Hochfrequenztechnik, Technische Universität Braunschweig, Braunschweig, Lower Saxony, Germany

³Hannover Centre for Optical Technologies, Leibniz University Hannover, Hannover, Lower Saxony, Germany.....94

Oral 2-5 **Retroreflex ellipsometry for isotropic three-phase systems with nonplanar surfaces**

15:05-15:20 Chia-Wei Chen^{1, 2*}, Matthias Hartrumpf², Thomas Längle², Jürgen Beyerer^{1, 2}

¹Vision and Fusion Laboratory (IES), Karlsruhe Institute of Technology (KIT), Karlsruhe, Baden-Württemberg, Germany

²Fraunhofer Institute of Optronics, System Technologies and Image Exploitation IOSB, Karlsruhe, Baden-Württemberg, Germany.....95

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15:20-15:35 Alexander Ebner^{1*}, Markus Brunner¹, Robert Zimmerleiter¹, Kurt Hingerl², Markus Brandstetter²

¹Infrared & Raman Spectroscopy, RECENDT-Research Center for Non-Destructive Testing GmbH, Linz, Upper Austria, Austria

²Center for Surface and Nanoanalytics, Johannes Kepler University, Linz, Upper Austria, Austria.....96

Oral 2-7 **Polarization effect calibration of the objective lens in an angle-resolved scatterometer**

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Jinsong Zhang, Hao Jiang, Jinlong Zhu, Shiyuan Liu

School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, China.....97

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16:20-16:40 Daniel Franta

Department of Physical Electronics, Masaryk University, Brno, Moravia, Czech Republic.....98

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Jiří Vohánka

Department of Physical Electronics, Masaryk University, Brno, South Moravia, Czech Republic..99

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Ivan Ohlídal

Department of Physical Electronics, Masaryk University, Brno, Southern Moravia, Czech Republic.....100

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 17:10-17:25 Cécile Marsal^{1*}, Etienne Panchout¹, Baptiste Giroire¹, Cyril Dupeyrat², Fabien Paumier¹, Thierry Girardeau¹
¹SP2MI H1 Physics and Mechanics of Materials Department, Pprime Research Institute, Chasseneuil-du-Poitou, Vienne, France
²Optical thinfilms, Safran Electronics & Defense, Saint-Benoît, Vienne, France.....101
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 17:25-17:40 Florian Maudet
QM-IFOX, Helmholtz-Zentrum Berlin, Berlin, Germany.....102
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 17:40-17:55 Kamil Postava^{1,2*}, Pierre Kolejak^{1,2}, Lukas Halagacka^{1,3}, Radek Hasal⁴, Cestmir Barta⁴
¹IT4Innovations, VSB-Technical University of Ostrava, Ostrava-Poruba, Czech Republic
²Faculty of Materials Sciences and Technology, VSB-Technical University of Ostrava, Ostrava-Poruba, Czech Republic
³Nanotechnology Centre CEET, VSB-Technical University of Ostrava, Ostrava-Poruba, Czech Republic,
⁴BBT, BBT - Materials Processing s.r.o., Prague, Czech Republic.....103
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 17:55-18:10 Sean Knight^{1*}, Steffen Richter¹, Philipp Kühne¹, Alexander Ruder², Georges Calas³, Laurence Galois³, Gérald Lelong³, Mathias Schubert^{2, 1}, Vanya Darakchieva^{1, 4}
¹Terahertz Materials Analysis Center and Centerfor III-Nitride Technology, C3NiT–Janzen, Department of Physics, Chemistry and Biology (IFM), Linköping University, Linköping, Sweden, Sweden
²Department of Electrical and Computer Engineering, University of Nebraska-Lincoln, Lincoln, NE, United States
³Institut de Minéralogie, de Physique des Matériaux et de Cosmochimie (IMPMC), Sorbonne University, Paris, Île-de-France, France
⁴NanoLund and Division of Solid State Physics, Lund University, Lund, Scania, Sweden.....104

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08:50-09:20		Alyssa Lynn Mock ^{1*} , Rafal Korlacki ² , Megan Stokey ² , Alexis Papamichail ³ , Vanya Darakchieva ^{3,4} , Mathias Schubert ^{2,3}	
		¹ Electrical and Computer Engineering, Weber State University, Ogden, Utah, United States	
		² Electrical and Computer Engineering, University of Nebraska - Lincoln, Lincoln, Nebraska, United States	
		³ Department of Physics, Chemistry and Biology (IFM), Linköping University, Linköping, Sweden	
		⁴ NanoLund and Division of Solid State Physics, Lund University, Lund, Sweden.....105	
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		School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, China.....106	
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		Biomedical Engineering, Florida International University, Miami, Florida, United States.....107	
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		Mechanical system engineering, Jeonbuk national university, Jeonju-si, Jeollabuk-do, Korea, South.....108	
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		State Key Laboratory of Digital Manufacturing Equipment and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China.....109	
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11:10-11:25		Chenyu Wang ^{1,2} , Gang Jin ^{1,2,3*}	
		¹ National Microgravity laboratory, Institute of Mechanics, Chinese Academy of Sciences, Beijing, China	

²*School of Engineering Science, University of Chinese Academy of Science, Beijing, China*

³*School of Fundamental Physics and Mathematical Sciences, Hangzhou Institute for Advanced Study, University of Chinese Academy of Sciences, Hangzhou, Zhejiang, China.....110*

Oral 5-5 **High throughput dynamic spectroscopic ellipsometry**

11:25-11:40 Gukhyeon Hwang¹, Vamara Dembele¹, Sukhyun Choi¹, Inho Choi¹, Junbo Sim¹, Saeid Kheiryzadehkhaghah¹, Sungtae Kim², Sangjun Kim², Daesuk Kim^{1*}

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²*AUROS Technoloy, 15-23 Dongtansandan 6-gil, Hwaseong-si, Gyeonggi-do, Korea, South.....111*

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Sheng Sheng, Chao Chen, Xiuguo Chen*, Shiyuan Liu

State Key Laboratory of Digital Manufacturing Equipment and Technology, Huazhong University Science and Technology, Wuhan 430074, China.....112

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11:55-12:10

Huatian Tu¹, Yuxiang Zheng^{1,2*}, Haotian Zhang¹, Haibin Zhao¹, Rongjun Zhang¹, Songyou Wang¹, Jing Li¹, YoungPak Lee^{1,3}, Liangyao Chen¹

¹*Department of Optical Science and Engineering, Fudan University, Shanghai, China*

²*Yiwu Research Institute, Fudan University, Yiwu, Zhejiang, China*

³*Department of Physics, Hanyang University, Seoul, Korea, South.....113*

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Keynote 3 **Exploring the sensitivity limits of a Mueller matrix ellipsometer. The spatial dispersion of Si** Tuesday 14:00-14:40 Zoom 1

Oriol Arteaga^{1*}, Razvigor Ossikovski², Adolf Canillas¹, Jordi Gomis-Brescó¹, Subiao Bian^{1,3}, Esther Pascual¹

Chair:
Tatiana Novikova
Co-Chair:
Honghui He

¹*Departament de Física Aplicada, Universitat de Barcelona, Barcelona, Spain*

²*LPCIM, École Polytechnique, Palaiseau, Paris, France*

³*Research Center for Intelligent Manufacturing Technology of Brittle Material Products, Huaqiao University, Xiamen, China.....114*

Session 6 Mueller Matrix Ellipsometry Tuesday 14:00--16:30 Zoom 1
Chair: Tatiana Novikova; Co-Chair: Honghui He

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Manuela Schiek

LIOS & ZONA, Johannes Kepler University of Linz, Linz, Upper Austria, Austria.....115

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Physics, NTNU, Trondheim, Norway, Norway.....116
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 15:15-15:30 Jiafeng Lu^{1,2}, Jing Tian¹, Bertrand Poumellec¹, Enrique Garcia-Caurel³, Razvigor Ossikovski³, Michel Stchakovsky⁴, Matthieu Lancry^{1*}
¹Institut de Chimie Moléculaire et des Matériaux d'Orsay, Université Paris Saclay, Orsay, Essonne, France
²The Key Lab of Specialty Fiber Optics and Optical Access Network, Laboratory of Specialty Fiber Optics and Advanced Communication, Shanghai University, Shanghai, China
³Laboratoire de physique des interfaces et couches minces, Ecole polytechnique, Palaiseau, Essonne, France
⁴HORIBA Europe Research Center, HORIBA, Palaiseau, Essonne, France.....117
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 15:30-15:45 Simon Hurand^{1*}, Alan Corvisier¹, Bertrand Lacroix^{2,3}, Antonio Jesus Santos^{2,3}, Florain Maudet¹, Cyril Dupeyrat^{1,4}, Rafael Garcia Roja^{2,3}, Francisco Miguel Morales^{2,3}, Thierry Girardeau¹, Fabien Paumier¹
¹Physics and Mechanics of Materials, Institut Pprime - Université de Poitiers, Chasseuil-du-Poitou, Nouvelle-Aquitaine, France
²Department of Materials Science and Metallurgic Engineering, and Inorganic Chemistry, Faculty of Sciences, University of Cádiz, Cádiz, Andalusia, Spain
³IMEYMAT: Institute of Research on Electron Microscopy and Materials, University of Cádiz, Cádiz, Andalusia, Spain
⁴Safran Electronics and Defense, Safran, Saint-Benoit, Nouvelle-Aquitaine, France.....118
- Oral 6-5 **Polarimetry Analysis and Optical Contrast of Sb₂S₃ and Ga₂S₃ Phase Change Material**
 15:45-16:00 Saul A. Rosales^{1*}, Yael Gutiérrez², Andrea Fernández-Pérez^{2,1}, Cornel Cobianu^{3,4}, Marin Gheorghe³, Mircea Modreanu⁵, José M. Saiz¹, Fernando Moreno¹, Maria Losurdo²
¹Department of Applied Physics,, Universidad de Cantabria, Santander, Cantabria, Spain
²Institute of Nanotechnology, CNR-NANOTEC, Bari, Italy
³NANOM MEMS, NANOM MEMS, Rasnov, Brasov, Romania
⁴Science and Information Technology Section, Academy of Romanian Scientists, Bucharest, Romania
⁵Micro/Nanoelectronics, Tyndall National Institute-University College Cork, Cork, Ireland.....119
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	Chair: Peter Petrik; Co-Chair: Changcai Cui	Zoom 1

Invited 7-1 **Giant anisotropy for next-generation nanophotonics**

16:30-16:50 Valentyn Volkov^{1*}, Georgy Ermolaev¹, Dmitry Grudinin¹, Yury Stebunov^{2, 3}, Kirill Voronin¹, Vasyl Kravets³, Jiahua Duan⁴, Arslan Mazitov¹, Gleb Tselikov¹, Andrey Bylinkin^{1, 5}, Dmitry Yakubovsky¹, Sergey Novikov¹, Denis Baranov¹, Aleksey Nikitin⁶, Ivan Kruglov¹, Timur Shegai⁷, Pablo Alonso-Gonzalez⁴, Alexander Grigorenko³, Aleksey Arsenin¹, Kostya Novoselov^{8, 2}

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²National Graphene Institute (NGI), University of Manchester, Manchester, United Kingdom

³Department of Physics and Astronomy, University of Manchester, Manchester, United Kingdom

⁴Department of Physics, University of Oviedo, Oviedo, 33006, Spain

⁵CIC, nanoGUNE BRTA, San Sebastian, 20018, Spain

⁶Donostia International Physics Center, (DIPC), San Sebastián, 20018, Spain

⁷Department of Physics, Chalmers University of Technology, Göteborg, 41296, Sweden

⁸Department of Materials Science and Engineering, National University of Singapore, 117574, Singapore.....120

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Yael Gutierrez

Institute of Nanotechnology, CNR NANOTEC, via Orabona 4, 70126 Bari, Italy.....121

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Department of Optoelectronics, Center for Physical Sciences and Technology, Vilnius, Lithuania.....122

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Institut Charles Sadron, Université de Strasbourg/CNRS, Strasbourg, France, France.....123

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Alexis Boileau¹, Simon Hurand^{2*}, Florent Baudouin³, Ulrike Luders¹, Marie Dallochio¹, Bruno Berini⁴, Aimane Cheick¹, David Adrian¹, Fabien Paumier², Thierry Girardeau², Philippe Marie⁵, Christophe Labbé⁵, Julien Cardin⁵, Damien Aureau⁶, Mathieu Frégniaux⁶, Maryline Guilloux-Viry³, Wilfrid Prellier¹, Yves Dumont⁴, Valérie Demange³, Arnaud Fouchet¹

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⁴*GEMaC, Université Paris-Saclay, CNRS, Versailles, Ile-de-France, France*

⁵*CIMAP, ENSICAEN, UNICAEN, CNRS, Caen, Normandie, France*

⁶*ILV, Université Paris-Saclay, CNRS, Versailles, Ile-de-France, France.....124*

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17:55-18:10

Florian Maudet^{1*}, Sourish Banerjee¹, Hanno Kröncke¹, Sven Wiesner¹, Veeresh Deshpande¹, Catherine Dubourdieu^{1,2}

¹*QM-IFOX, Helmholtz-Zentrum Berlin, Berlin, Germany*

²*Physical Chemistry, Freie Universität Berlin, Berlin, Germany.....125*

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²Electrical & Computer Engineering, University of Nebraska–Lincoln, Lincoln, Nebraska, United States.....131

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 Chair: Herbert Wormeester; Co-Chair: Nan Zeng Zoom 1

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Miklos Fried, Tivadar Lohner, Attila Németh, Peter Petrik

Photonics, Institute of Technical Physics and Materials Science, Centre for Energy Research, Budapest XII., Hungary, Hungary.....132

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16:50-17:05 Matthias Duwe, Shun Okano, Peter H. Thiesen¹

Application Lab, Accurion GmbH, Göttingen, Lower Saxony, Germany.....133

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Benjamin Kalas¹, György Sáfrán¹, Miklós Serényi¹, Kárpát Ferencz^{2, 3}, Miklós Fried^{1, 4}, Peter Petrik^{1*}

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²Institute for Solid State Physics and Optics, Wigner Research Centre for Physics, Budapest, Pest, Hungary

³Optilab Ltd, Optilab Ltd, Budapest, Pest, Hungary

⁴Institute of Microelectronics and Technology, Obuda University, Budapest, Pest, Hungary.....134

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17:20-17:35 Attila Sütő

Ellipsometry, Semilab Semiconductor Physics Laboratory Co. Ltd., Budapest, Pest, Hungary.....135

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¹Application, Wuhan Eoptics Technology Co. Ltd., Wuhan, Hubei, China

²State Key Laboratory of Digital Manufacturing Equipment and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China.....140

Oral 10-6 **Visualizing the dynamic evolution of electrode/electrolyte interface based on a novel spectra analysis method of in-situ spectroscopic ellipsometry**

09:50-10:05

Jinlong Chen¹, Jianxing He², Lingjie Li^{1*}

¹School of Chemistry and Chemical Engineering, Chongqing University, Chongqing, China

²Weathering test and research department, Southwest Technology and Engineering Research Institute, Chongqing, China.....141

10:05-10:35 Coffee

10:35-12:20 **Poster Session B**

Chair: Yueli Zhang & Zhigao Hu
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Keynote 5 **Optical characterization of photonic architectures fabricated by soft lithography**

Thursday 14:00--14:40

Zoom 1

Chair:

Maria Isabel Alonso

Wojciech Ogieglo

Institut de Ciència de Materials de Barcelona, ICMA-B-CSIC, Bellaterra, Catalonia, Spain.....142

Co-Chair:

Yuan Gao

Session 11 Optical & Electronic Applications

Thursday 14:40-16:00

Chair: Wojciech Ogieglo; Co-Chair: Yuan Gao

Zoom 1

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14:40-15:00

Norbert Esser, Christoph Cobet

Institut für Festkörperphysik, TU Berlin, Berlin, Germany.....143

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15:00-15:15

Andreas Hertwig^{1*}, François Piquemal², Khaled Kaja², Johannes Hoffmann³, Brice Gautier⁴

¹6.7 Surface Modification and Measurement Techniques, Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany

²Fundamental Electrical Metrology Department, Laboratoire national de métrologie et d'essais (LNE), Trappes, Île-de-France, France

³RF and Microwave, Eidgenössisches Institut für Metrologie METAS (METAS), Bern-Wabern, Bern, Switzerland

⁴INL, Institut National des Sciences Appliquées de Lyon (INSA), Lyon, France.....144

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15:15-15:30

Yanqing Gao, Zhiming Huang, Junhao Chu

State Key Laboratory of Infrared Physics, Shanghai Institute of Technical Physics, Chinese Academy of Sciences, Shanghai, China.....145

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15:30-15:45

Johann Toudert^{1,2*}, Rosalia Serna², Marina García Pardo², Eva Nieto Pinero², Amanda K Petford-Long^{3, 4}

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²*Laser Processing Group, Instituto de Optica-CSIC, Madrid, Spain*

³*Materials Science Division, Argonne National Laboratory, Argonne, Illinois, United States*

⁴*Materials Science and Engineering Department, Northwestern University, Evanston, Illinois, United States.....146*

- Oral 11-5 **Visualizing electron transfer at semiconductor-metal interface by surface plasmon resonance imaging**

15:45-16:00

Meng Li

School of Chemistry and Chemical Engineering, Nanjing University, Nanjing, Jiangsu Province, China.....147

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Chair: Eva Bittrich; Co-Chair: Yiyang Fei Zoom 1

- Invited 12-1 **Bacteria detection in the Kretschmann geometry flow cell on plasmon-enhanced interface with spectroscopic ellipsometer**

16:30-16:50

Emil Agocs^{1, 2*}, Harsh Jivani³, Lea Könemund², Laurie Neumann², Felix Hirschberg², Hans-Hermann Johannes^{1, 2}, Wolfgang Kowalsky^{1, 2}

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²*Institut für Hochfrequenztechnik, Technische Universität Braunschweig, Braunschweig, Lower Saxony, Germany*

³*Hannover Centre for Optical Technologies, Leibniz University Hannover, Hannover, Lower Saxony, Germany.....148*

- Oral 12-2 **Mueller polarimetry of brain tissues**

16:50-17:05

Tatiana Novikova^{1*}, Angelo Pierangelo¹, Philippe Schucht², Ekkehard Hewer³, Theoni Maragkou⁴, Richard McKinley⁵, Michael Murek², Andreas Raabe², Enikő Kövari⁶, Johannes Goldberg², Irena Zubak², Mohammed Hachem Mezouar¹, Hee Ryung Lee¹, Leonard Felger², Omar Rodriguez-Nunez¹

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⁵Support Center for Advanced Neuroimaging (SCAN), University Institute of Diagnostic and Interventional Neuroradiology, University of Bern, Bern

⁶Department of Mental Health and Psychiatry, University Hospitals of Geneva, Geneva, 1205, Switzerland.....149

Oral 12-3 **Investigation of the membrane affinity of carbon nanodots by in-situ spectroscopic ellipsometry**
17:05-17:20

Alekszej Romanenko^{1, 2*}, Peter Petrik¹, Gergő Gyulai³

¹Photonics, Centre For Energy Research, Budapest, Pest region, Hungary

²Doctoral School of Chemistry, Eötvös Loránd University, Budapest, Pest, Hungary

³Department of Physical Chemistry, Eötvös Loránd University, Budapest, Pest, Hungary.....150

Oral 12-4 **Analysis of malaria infection byproducts with Mueller matrix transmission ellipsometry**
17:20-17:35

Peter Basa^{1*}, Ágnes Orbán², Balint Fodor¹, István Kézsmárki^{2,3}, András Halbritter²

¹Ellipsometry, Semilab Co. Ltd., Budapest, Hungary

²Department of Physics, Budapest University of Technology and Economics, Budapest, Hungary

³Experimental Physics V, Center for Electronic Correlations and Magnetism, University of Augsburg, Augsburg, Germany.....151

Oral 12-5 **Characterization of Vine Leaves by Imaging Mueller Polarimetry**

17:35-17:50 Bandar Al Bugami, Yihua Su, Razvigor Ossikovski, Enrique Garcia Caurel

Physics Department, Ecole polytechnique, Palaiseau, Ile de France, France.....152

Oral 12-6 **Combining Polarization and Image Features for Quantitative Characterization of Pathological Tissues**
17:50-18:05

Yue Yao^{1,2}, Hui Ma^{1,2*}

¹Shenzhen Key Laboratory for Minimal Invasive Medical Technologies, Shenzhen International Graduate School, Tsinghua University, Shenzhen, Guangdong, China

²Guangdong Engineering Center of Polarization Imaging and Sensing Technology, Tsinghua University, Shenzhen, Guangdong, China.....153

20:00 Committee Meeting(Upon Invitation)

Session 13 Two Dimensional System		Friday 08:30-10:05
Chair: Daesuk Kim; Co-Chair: Wanfu Shen		Zoom 1
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Oral 13-3 09:05-09:20	Dielectric functions of 2D WS₂-WSe₂ single-crystal heterostructures studied by spectroscopic ellipsometry Mingsheng Fang, Honggang Gu, Chao Chen, Xiuguo Chen, Shiyuan Liu <i>School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, China.....156</i>	
Oral 13-4 09:20-09:35	Layer-dependent Optical Properties of Two-dimensional Noble Metal Dihalides studied via spectroscopic ellipsometry Mingyang Wei ¹ , Jie Lian ^{2*} , Yu Zhang ¹ , Wang Chenlin ² , Yueming Wang ¹ , Xu Zhen ² , Xiang'an Zhou ² ¹ Center for Optics Research and Engineering, Shandong University, Qingdao, Shandong Province, China ² School of Information Science and Engineering, Shandong University, Qingdao, Shandong Province, China.....157	
Oral 13-5 09:35-09:50	Excitons in two-dimensional PtSe₂ thin films Junbo He ¹ , Cheng Wang ¹ , Wenqian Xu ² , Songyou Wang ¹ , Yuxiang Zheng ¹ , Liangyao Chen ¹ , Rongjun Zhang ^{1,2,3*} ¹ School of Information Science and Engineering, Fudan University, Shanghai, China ² Academy for Engineering and Technology, Fudan University, Shanghai, China ³ Institute of Optoelectronics, Fudan University, Shanghai, China.....158	
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Center of Photonics and 2D Materials, Moscow Institute of Physics and Technology, Dolgoprudny, Moscow region, Russia.....159

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10:35-10:55 Lee J. Richter

Materials Science and Engineering Division, National Institute of Standards and Technology, Gaithersburg, MD, United States.....160

Oral 14-2 **Optical analysis of pixel OLED by the mixed-level algorithm considering the light leakage effects**

10:55-11:10

Linya Chen¹, Honggang Gu², Xuenan Zhao², Shiyuan Liu^{2*}

¹*School of Optical and Electronic Information, Huazhong University of science and technology, Wuhan, Hubei, China*

²*School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, China.....161*

Oral 14-3 **Bio-inspired giant refractive index gradient in ionic polymers**

11:10-11:25 Georgy Ermolaev^{1*}, Tatiana Statsenko^{2,3}, Aleksey Arsenin¹, Valentyn Volkov¹, Sofia Morozova^{2, 3, 4}

¹*Center of Photonics and 2D Materials, Moscow Institute of Physics and Technology, Dolgoprudny, Moscow region, Russia*

²*International research center SCAMT, ITMO University, Saint-Petersburg, Russia*

³*School of Physics and Engineering, ITMO University, Saint-Petersburg, Russia*

⁴*Chemical Department, N.E. Bauman Moscow State Technical University, Moscow, Russia.....162*

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Wojciech Ogieglo, Ingo Pinnau

Advanced Membranes and Porous Materials Center (AMPMC), King Abdullah University of Science and Technology (KAUST), Thuwal, Makkah, Saudi Arabia.....163

Oral 14-5 **Integrated application of spectroscopic ellipsometer for CMP process monitor**

11:40-11:55 Jun Chen¹, Weiqi Li¹, Kang Yang¹, Ze Tao¹, Chuanwei Zhang^{1, 2*}

¹*Research and Development, Wuhan Eoptics Technology Co. Ltd., Wuhan, Hubei, China*

²*State Key Laboratory of Digital Manufacturing Equipment and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China.....164*

11:55-14:00 Lunch

Keynote 6	Ellipsometry giving insight into plasmonic electron distributions Judit Budai <i>Ultrafast Science and Application Division, ELI-HU Non-Profit Ltd., Szeged, Csongrád-Csanád megye, Hungary.....</i>	Friday 14:00--14:40 Zoom 1 Chair: Ana S. Viana Co-Chair: Ran Liao
Session 15	Bio- & Energy-Related Applications Chair: Ana S. Viana; Co-Chair: Ran Liao	Friday 14:40-16:15 Zoom 1
Invited 15-1	Screening of ATTECs for mHTT by high-throughput screening platform based on label-free detection of small-molecule microarray Yiyan Fei, Hang Zhang <i>Department of Optical Science and Engineering, Fudan University, Shanghai, Shanghai, China.....</i>	14:40-15:00 165
Oral 15-2	Operando electrochemical spectroscopic ellipsometry: Material properties of highly active mesoporous IrOx films revealed under realistic OER conditions René Sachse ¹ , Mika Pflüger ² , Juan-Jesús Velasco-Vélez ³ , Mario Sahre ¹ , Jörg Radnik ¹ , Michael Bernicke ⁴ , Denis Bernsmeier ⁴ , Vasile-Dan Hodoroaba ¹ , Michael Kumrey ² , Peter Strasser ⁴ , Ralph Kraehnert ⁴ , Andreas Hertwig ^{1*} ¹ 6.7, Federal Institute for Materials Research and Testing (BAM), Berlin, Germany ² 7.2, Physikalisch-Technische Bundesanstalt (PTB), Berlin, Germany ³ Department of Heterogenous Reactions, Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin, Germany ⁴ Faculty II Mathematics and Natural Sciences, Institute of Chemistry, Technical University Berlin, Berlin, Germany.....	15:00-15:15 167
Oral 15-3	Development of Mueller matrix microscope for imaging living cells Tongyu Huang ^{1,2} , Qianhao Zhao ¹ , Lu Si ³ , Xingjian Wang ³ , Hui Ma ^{1,2,3,4*} ¹ Shenzhen International Graduate School, Tsinghua University, Shenzhen, Guangdong, China ² Department of Biomedical Engineering, Tsinghua University, Beijing, China ³ Center for Precision Medicine and Healthcare, Tsinghua-Berkeley Shenzhen Institute, Shenzhen, Guangdong, China ⁴ Department of Physics, Tsinghua University, Beijing, China.....	15:15-15:30 168
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Oral 15-5	Force analysis of detection phage M₁₃KO₇ using biosensor based on imaging ellipsometry	15:45-16:00

Cai Qi^{1*}, Xuyan Zhang¹, Jingwen Lei¹, Gang Jin^{2, 3, 4}

¹*School of Life Sciences, Henan University, Kaifeng, Henan, China*

²*NML, Institute of Mechanics, Chinese Academy of Sciences, Beijing, China*

³*School of Fundamental Physics and Mathematical Sciences, Hangzhou Institute for Advanced Study, University of Chinese Academy of Sciences, Hangzhou, Zhejiang, China*

⁴*School of Engineering Sciences, University of Chinese Academy of Sciences, Beijing, China.....170*

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Session 16	Optical & Electronic Applications	Friday 16:45-18:20
	Chair: Andreas Hertwig; Co-Chair: Jinlong Zhu	Zoom 1

Invited 16-1 **Probing the local excitonic properties of monolayer WS₂ flakes with imaging ellipsometry**
16:45-17:05

Michele Magnozzi^{1*}, Theo Pflug^{2, 3}, Marzia Ferrera¹, Simona Pace^{4, 5}, Lorenzo Ramò¹, Markus Olbrich², Paolo Canepa¹, Hasret Agircan^{4, 6}, Alexander Horn², Stiven Forti^{4, 5}, Ornella Cavalleri¹, Camilla Coletti^{4, 5}, Francesco Bisio⁷, Maurizio Canepa¹

¹*Physics Department, Università di Genova, Genova, Italy*

²*Laserinstitut Hochschule Mittweida, Mittweida, Germany*

³*Technische Universität Chemnitz, Chemnitz, Germany*

⁴*Centerfor Nanotechnology Innovation IIT@NEST, Pisa, Italy*

⁵*Graphene Labs, Istituto Italiano di Tecnologia, Genova, Italy*

⁶*Engineering Department, Istanbul Technical University, Istanbul, Turkey*

⁷*CNR-SPIN, Genova, Italy.....171*

Oral 16-2 **Electrochemical, ellipsometric and microgravimetric study of ion permeable polydopamine films**
17:05-17:20

Luis C. Almeida, Rui D. Correia, Jorge P. Correia, Ana S. Viana

Centro de Química Estrutural, Faculty of Sciences, University of Lisbon, Lisbon, Portugal.....172

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Jiamin Liu, Lin Zhang, Jinlong Zhu, Honggang Gu, Hao Jiang, Shiyuan Liu

State Key Laboratory of Digital Manufacturing Equipment and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China.....173

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17:35-17:50 Eva Bittrich¹, Saghar Nazari^{1*}, Matthew Hilfiker², Ufuk Kilic², Petra Uhlmann^{1, 3}, Andreas Fery^{1, 4}, Eva Franke-Schubert^{2, 5}, Mathias Schubert^{2, 5, 6}

¹*Nanostructured material (NM), Leibniz Institut für Polymerforschung, IPF, Dresden, Dresden, Sachsen, Germany*

²*Department of Electrical and Computer Engineering, University of Nebraska-Lincoln, Lincoln, Nebraska, United States*

³*Department of Chemistry, University of Nebraska-Lincoln, Lincoln, Nebraska, United States*

⁴*Department of Physical Chemistry of Polymeric Materials, Technical University Dresden, Dresden, Sachsen, Germany*

⁵*Center for Nanohybrid Functional Materials, University of Nebraska-Lincoln, Lincoln, Nebraska, United States*

⁶*Department of Physics, Chemistry, and Biology (IFM), Linköping University, Uppsala, Sweden.....174*

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17:50-18:05

Steffen Richter^{1*}, Sean Robert Knight¹, Philipp Kühne¹, Alexander Ruder², Mathias Schubert^{2, 1}, Vanya Darakchieva^{1, 3}

¹*IFM, Linköping University, Linköping, Östergötland, Sweden*

²*Department of Electrical and Computer Engineering, University of Nebraska-Lincoln, Lincoln 68588, Nebraska, United States*

³*Division of Solid State Physics, Lund University, 22100 Lund, Skåne, Sweden.....175*

Oral 16-6 **A Detailed Study of the Optical Properties of GQD/PEDOT: PSS Hybrid thin films**

18:05-18:20 Minghua Kong, Miquel Garriga, Juan Sebastián Reparaz, Maria Isabel Alonso

Material Science, Institute of Materials Science of Barcelona, Barcelona, Catalunya, Spain.....176

Keynote 7	Flat Optics: from metalenses and cameras to structured light and dark Federico Capasso ^{1, 2} ¹ <i>John A. Paulson School of Engineering and Applied Sciences</i> ² <i>Harvard University, Cambridge, MA 02138.....177</i>	Saturday 08:30--09:10 Zoom 1 Chair: Tino Hofmann Co-Chair: Haibin Zhao
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Invited 17-1 09:10-09:30	Extremely broadband plasmonic chiroptical activity revealed by heterostructure helical metamaterials Ufuk kilic ^{1*} , Matthew Hilfiker ¹ , Rene Feder ² , Alex Ruder ¹ , Shawn Wimer ¹ , Eva Schubert ¹ , Christos Argyropoulos ¹ , Mathias Schubert ¹ ¹ <i>Electrical and Computer Engineering, University of Nebraska Lincoln, Lincoln, Nebraska, United States</i> ² <i>Fraunhofer Institute for Microstructure of Materials and Systems, IMWS, Halle, Saale, Germany.....178</i>	
Oral 17-2 09:30-09:45	Anisotropic optical properties of single crystal GdScO₃ and TbScO₃ Prabin Dulal ¹ , Emily Jo Miller ¹ , Indra Subedi ¹ , Nikolas J Podraza [*] <i>Department of Physics & Astronomy and Wright Center for Photovoltaics & Innovation and Commercialization, The University of Toledo, Toledo, Ohio, United States.....179</i>	
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⁷*Electrical and Computer Engineering, University of Michigan, Ann Arbor, Michigan, United States*

⁸*Solid State Physics and NanoLund, Lund University, Lund, Sweden.....181*

Oral 17-5 **Interpretation of optical properties of epitaxial LaMnO₃ thin films**

10:15-10:30 Marie Solange Tumusange¹, Ghadendra Bhandari², Prakash Uprety¹, Indra Subedi¹, Mikel Halcomb², Nikolas Jacob Podraza^{1*}

¹*Physics and Astronomy, University of Toledo, Toledo, Ohio, United States*

²*Physics and Astronomy, West Virginia University, Morgantown, West Virginia, United States.....182*

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11:00 Chair: Gang Jin

Closing Remarks

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10:20-10:23	Zhen Xu ¹ , Jie Lian ^{1, 2*} , Mingyang Wei ² , Zhang Yu ² , Chenlin Wang ¹ , Yueming Wang ² , Xiang'an Zhou ¹	
	¹ School of Information Science and Engineering, Shandong University, Qingdao, Shandong, China	
	² Key Laboratory of Laser & Infrared System, Ministry of Education, Shandong University, Qingdao, Shandong, China.....184	
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10:23-10:26	Huihui Li ^{1,2} , Changcai Cui ^{1,2*}	
	¹ Institute of manufacturing engineering, Huaqiao University, Xiamen, Fujian, China	
	² National and Local Joint Engineering Research Center for Intelligent Manufacturing Technology of Brittle Material Products, Huaqiao University, Xiamen, Fujian, China.....185	
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	¹ Key Laboratory of Laser & Infrared System, Ministry of Education, Shandong University, Qingdao, Shandong, China	
	² School of Information Science and Engineering, Shandong University, Qingdao, Shandong, China.....186	
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10:29-10:32	Weiming Liu ¹ , Junbo He ¹ , Xudan Zhu ¹ , Yan Yang ² , Xin Chen ² , Rongjun Zhang ^{1, 3*}	
	¹ Department of Optical Science and Engineering, Fudan University, Shanghai, China	
	² National Laboratory for Infrared Physics, Shanghai Institute of Technical Physics, Chinese Academy of Sciences, Shanghai, China	
	³ Institute of Optoelectronics, Fudan University, Shanghai, China.....187	
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	¹ Shandong University, School of Information Science and Engineering, Qingdao, Shandong, China	
	² Beijing Normal University, Key Laboratory of Beam Technology of Ministry of Education, College of Nuclear Science and Technology, Beijing, China	
	³ Shandong University, Key Laboratory of Laser & Infrared System, Ministry of Education, Qingdao, Shandong, China.....188	
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- Applied Physics, Kyung Hee University, Yong-In, Gyeonggido, Korea, South*.....189
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Ilwan Seo, Yunsang Lee
Physics, Soongsil University, Seoul, Korea, South.....190
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10:41-10:44
Aušrinė Jurkevičiūtė^{1,2*}, Raimonds Poplauskis¹, Juris Prikulis¹
¹*Institute of Chemical Physics, University of Latvia, Riga, Latvia*
²*Institute of Materials Science, Kaunas University of Technology, Kaunas, Lithuania*.....191
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Johann Toudert^{1,2*}, Rosalia Serna²
¹*Optical Nanocharacterization Group, ENSEMBLE3 Centre of Excellence, Warsaw, Mazowieckie, Poland*
²*Laser Processing Group, Instituto de Optica-CSIC, Madrid, Spain*.....192
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Etienne Panchout^{1*}, C. Marsal², F. Paumier², T. Girardeau², B. Giroire², C. Dupeyrat³
E. Panchout^{2*}
¹*Physics and Properties of Nanostructures, Pprime institute, Poitiers, Vienne, France*
²*Institut Pprime, UPR 3346 CNRS-Université de Poitiers-ENSMA, SP2MI, 86962 Futuroscope -Chasseneuil cedex, France*
³*Safran Electronics&Defense, 26 avenue des Hauts de la Chaume, 86280 Saint-Benoit, France*.....193
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10:50-10:53
Nazim T. Mamedov^{1*}, Elvin H. Alizade¹, Zakir A. Jahangirli^{1,2}, Ziya S. Aliev^{1,3}, Imam R. Amiraslanov^{1,2}, Samir N. Mammadov⁴, Mikhail M. Otrokov^{5,6}, Eugene V. Chulkov^{6,7,8}
¹*Spectroscopic Ellipsometry, Institute of Physics, Baku, Azerbaijan, Azerbaijan*
²*Physical Problems, Baku State University, Baku, Azerbaijan*
³*Chemistry, Azerbaijan State Oil and Industry University, Baku, Azerbaijan, Azerbaijan*
⁴*Surface analysis, Thermo Fisher Scientific, Berlin, Germany*
⁵*Basque Foundation for Science, IKERBASQUE, Bilbao, Spain*
⁶*Centro Mixto CSIC-UPV/EHU, Centro de Física de Materiales (CFM-MPC), San Sebastian, Basque Country, Spain*
⁷*DIPC, Donostia International Physics Center (DIPC), San Sebastian, Basque Country, Spain*
⁸*Physics, Saint Petersburg State University, Saint Petersburg, Russia*.....194

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10:53-10:56

Shenghong Yang^{1*}, Yueli Zhang², Mo Dang¹

¹*School of Physics, Sun Yat-sen University, Guangzhou 510275, China*

²*School of Materials Science and Engineering, Sun Yat-sen University, Guangzhou 510275.....195*

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Ziya S. Aliev^{1, 2}, Elvin H. Alizade¹, Sadiyar S. Ragimov^{1, 3}, Nadir A. Abdulayev¹, Mahammad B. Babanly⁴, Nazim T. Mamedov^{1*}

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²*Chemistry, Azerbaijan State Oil and Industry University, Baku, Azerbaijan*

³*Physical Problems, Baku State University, Baku, Azerbaijan*

⁴*Inorganic functional materials, Institute of Catalysis and Inorganic Chemistry, Baku, Azerbaijan, Azerbaijan.....196*

Poster Session A	Anisotropic and Ferroelectric Materials	Wednesday 10:59-11:14
	Chair: Yueli Zhang & Zhigao Hu	Zoom 1

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10:59-11:02

Steffen Richter^{1, 2*}, Alexis Papamichail², Vallery Stanishev², Alyssa Lynn Mock³, Andreas Popp⁴, Saud Bin Anooz⁴, Mathias Schubert^{5, 2}, Vanya Darakchieva^{2, 1}

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²*IFM, Linköping University, Linköping, Östergötland, Sweden*

³*Applied Science and Technology, Weber State University, Ogden 84408, Utah, United States*

⁴*IKZ, Leibniz-Institut für Kristallzüchtung, 12489 Berlin, Berlin, Germany*

⁵*Department of Electrical and Computer Engineering, University of Nebraska-Lincoln, Lincoln 68588, Nebraska, United States.....197*

Poster A-15 **Anisotropic optical properties of SnSe and its temperature dependence**

11:02-11:05 Tae Jung Kim^{1*}, Long Van Le², Xuan Au Nguyen¹, Hoang Tung Nguyen², Young Dong Kim¹

¹*Department of Physics, Kyung Hee University, Seoul, Korea, South*

²*Institute of Materials Science, Vietnam Academy of Science and Technology, Hanoi, Vietnam.....198*

Poster A-16 **Anisotropic Dielectric Function of β-InSe and InTe: a Combined Spectro-Ellipsometric and Ab-Initio Study**
11:05-11:08

Elvin H. Alizade¹, Arzu I. Najafov¹, Zakir A. Jahangirli^{1,2}, Bakhshi H. Mehdiyev^{1,2}, Sadiyar S. Ragimov^{1,2}, Masato Ishikawa³, Samir N. Mammadov⁴, Imamaddin R. Amirasanov^{1,2}, Javid N. Jalilli¹, Dunyamali A. Mammadov¹, YongGu Shim⁵, Kazuki Wakita³, Nazim T. Mamedov^{1*}

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²*Physical Problems, Baku State University, Baku, Azerbaijan*

³*Chiba Institute of Technology, Narashino, Chiba, Japan*

⁴*Surface analysis, Thermo Fisher Scientific, Berlin, Germany*

⁵*Graduate School of Engineering, Osaka Prefecture University, Osaka, Japan.....199*

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11:08-11:11

Yu Yu¹, Wanfu Shen¹, Guoteng Ma¹, Soy Daniel Sanchez¹, Yufeng Huang¹, Lidong Sun², Chunguang Hu^{1*}

¹*State Key Laboratory of Precision Measuring Technology and Instruments, Tianjin university, Tianjin, China*

²*Institute of Experimental Physics, Johannes Kepler University Linz, Linz, Upper Austria, Austria....200*

Poster A-18 **Interpretation of optical properties of epitaxial LaMnO₃ films**

11:11-11:14 Marie Solange Tumusange¹, Ghadendra Bhandari², Prakash Uprety¹, Indra Subedi¹, Mikel Holcomb², Nikolas Jacob Podraza^{1*}

¹*Physics and Astronomy, University of Toledo, Toledo, Ohio, United States*

²*Physics and Astronomy, West Virginia University, Morgantown, West Virginia, United States.....201*

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Chenyu Wang^{1, 2}, Gang Jin^{1, 2, 3*}

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³*School of Fundamental Physics and Mathematical Sciences, Hangzhou Institute for Advanced Study, University of Chinese Academy of Sciences, Hangzhou, Zhejiang, China.....202*

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Haoyu Liu^{1, 2}, Gang Jin^{1, 2, 3*}

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Haoyu Liu^{1, 2}, Gang Jin^{1, 2, 3*}

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³School of Fundamental Physics and Mathematical Sciences, Hangzhou Institute for Advanced Study, University of Chinese Academy of Sciences, Hangzhou, Zhejiang, China.....204

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Lu He, Teresa Isabel Picoto Pena Madeira, Dietrich R.T. Zahn

Institute of Physics, Semiconductor Physics, Chemnitz University of Technology, D-09107 Chemnitz, German, and Center for Materials, Architectures and Integration of Nanomembranes (MAIN), D-09107, Chemnitz, Germany, Chemnitz, Sachsen, Germany.....205

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Yu Zhang¹, Jie Lian^{1, 2*}, Mingyang Wei¹, Chenlin Wang², Yueming Wang¹, Zhen Xu², Xiang'an Zhou²

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²School of Information Science and Engineering, Shandong University, Qingdao, Shandong, China.....206

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³Institute for Solid State Physics and Optics, Wigner Research Centre for Physics, Budapest, Hungary.....207

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¹*Applications, J. A. Woollam, Lincoln, Nebraska, United States*

²*Hardware Research & Technology Laboratory, Palo Alto Research Center, Palo Alto, California, United States.....209*

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²*Yiwu Research Institute, Fudan University, Yiwu, Zhejiang, China.....210*

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²*Nanchang Institute for Microtechnology, Tianjin University, Tianjin, China*

³*Institute of Experimental Physics, Johannes Kepler University Linz, Linz, Upper Austria, Austria.....212*

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²*Nanchang Institute for Microtechnology, Tianjin University, Tianjin, China.....213*

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²*State Key Laboratory of Digital Manufacturing Equipment and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China.....214*

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Frank Balzer¹, Sebastian Funke², Matthias Duwe², Peter H. Thiesen², Kurt Hingerl³, Manuela Schiek^{4*}

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³ZONA, Johannes Kepler University, Linz, Upper Austria, Austria

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¹Applied Physics Department, Barcelona University, Barcelona, Spain

²Mechanical engineering, Huaqiao University, Xiamen, Fujian, China.....219

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Ming Gong¹, Honggang Gu^{1*}, Jun Chen², Chuanwei Zhang^{1, 2*}, Shiyuan Liu¹

¹School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, China

²Wuhan Eoptics Technology Co. Ltd, Wuhan Eoptics Technology Co. Ltd, Wuhan, Hubei, China.....220

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¹*School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, Hubei 430074, China*

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