VIRTUAL CHRISTMAS GET-TOGETHER: 1ST SINO-EUROPEAN EARLY CAREER RESEARCHERS WORKSHOP ON EMERGING TECHNIQUES AND APPLICATIONS IN ELECTRON MICROSCOPY
27-28 December 2020

The formidable year of 2020 has greatly affected the extent of academic exchange and driven us towards a new culture of online discussions. Despite many virtual events successfully held throughout the year, few of them served as a platform for early career researchers and brought a broader community beyond Europe. In view of this, three Europe-based young microscopists, Dr. Pei Liu (University of Antwerp, BE & Technical University of Denmark, DK), Penghan Lu (Research Center Juelich, DE), and Dr. Mingjian Wu (University of Erlangen-Nuremberg, DE) initiated and organized the 1st Sino-European Early Career Researchers Virtual Workshop on Emerging Techniques and Applications in Electron Microscopy on 27 and 28 December 2020.

The program consisted of 18 invited talks given by early career researchers and young PIs from 8 European countries as well as China. Those high-quality presentations were focused on 4 topical sessions, including 1) Imaging and diffraction of radiation sensitive specimen, 2) Quantification and data mining in electron microscopy, 3) In situ/environmental/ultrafast electron microscopy and 4) Advances in electron spectroscopy. At the end of each session, a panel discussion following the format of the Gordon Research Conference lead by senior experts turned out to be very stimulating and sparked the audience to a plethora of insightful comments. Furthermore, during the workshop, a career forum and Christmas quiz rounds added more joyful moments to the virtual get-together.

The workshop has attracted more than 360 registrants from 21 countries and 123 organizations. Around 210 colleagues eventually participated in the workshop and contributed about 120 questions in the Q&A sessions after the talks, as well as many more comments during the panel discussions. Thanks to the online platform, excessive questions could be answered offline and shared with all participants.

After the workshop, the organizers received a lot of positive feedback from the attendees about the outstanding quality of the invited talks, the deep insight from the panel discussions, as well as the smooth organization and the welcoming atmosphere. This greatly encouraged the organizers to extend this virtual event to an annual series and continue organizing the 2nd workshop in December 2021. We are looking forward to meeting more colleagues next time! ■

Mingjian Wu

SEEM 2021, 2nd Sino-European early career researchers workshop
7-10 December 2021

Following the success of the 1st Sino-European Early Career Researchers Workshop on Emerging Techniques and Applications in Electron Microscopy in December 2020, the second event of this series took place on 7-10, December 2021, again concluded a great success. The workshop is sponsor-free, non-for-profit and free to attend, organized by four Europe-based young microscopists, Dr. Pei Liu (Technical University of Denmark, DK), Penghan Lu (Research Center Juelich, DE), Dr. Mingjian Wu (University of Erlangen-Nuremberg, DE) and Dr. Zezhong Zhang (University of Antwerp, BE). This annual workshop aims to set up a regular bilateral forum for electron microscopists based in China and Europe, especially early career researchers and young PIs.

This year the workshop focuses on four scientific sessions, including:
1. learning from and contributing to cryo-EM,
2. automation, data handling and deep learning,
3. advancing in situ electron microscopy and
4. quantification in multi-dimensions with four keynote lectures given by senior professors, 20 invited talks given by early career researchers and young PIs from 7 European countries and China.

At the end of each session, a panel discussion led by the keynote lecturer turned out to be stimulating and insightful. Beyond the scientific sessions, two forums namely techno-bite and career development were also organized and received high recognition. In the techno-bite forum, industrial guests presented their technical innovations and perspectives of democratization of electron microscopy products. In the career forum, guests at different stages of their career, ranging from postdocs to faculty dean, shared their views of developing career pathways in academia.

The workshop has attracted 430 registrants from 27 countries and more than 120 organizations. Almost 300 colleagues have eventually participated in the workshop and contributed about 200 questions in the Q&A sessions after the talks, as well as many more comments during the panel discussions. Thanks to the online platform, excessive questions could be answered offline and shared with all participants. During and after the workshop, the organizers received positive feedback from the attendees about the outstanding quality of the invited talks, the deep insight from the panel discussions, as well as the smooth organization and the welcoming atmosphere. We are looking forward to meeting more colleagues next December 6-9 in SEEM 2022! ■

Pei Liu, Penghan Lu, Mingjian Wu and Zezhong Zhang

Virtual Christmas Get-together

Sino-European Early Career Researchers Workshop on Emerging Techniques and Applications in Electron Microscopy

27 - 28 December 2020

The year of 2020 has been a tough year for most of us, and the situation doesn't seem to return to normal in most of the places around the world. This has also affected the extent of academic exchange and driven us towards a new culture of scientific discussions. In view of this, we decided to organize a virtual Christmas get-together workshop providing a forum for both Europe- and China-based electron microscopists, especially early career researchers and young PIs, to spend together the very end of this special year and review the latest progress on emerging techniques and applications in electron microscopy. We will be very pleased to see many of you joining us in the discussions, and wish you are all staying safe and healthy!
Sincerely,
the Organizers,
Pei Liu (UAntwerpen & DTU) , Penghan Lu (Research Centre Jülich), Mingjian Wu (Uni Erlangen-Nürnberg)

Imaging & diffraction of radiation sensitive specimen

- **Yihan Zhu**, Zhejiang University of Technology, CN
  Low-dose imaging by transmission electron microscopy: challenges, opportunities, and future trends

- **Haoyuan Qi**, Ulm University, DE
  Towards atomic-resolution HRTEM imaging of organic 2D crystals

- **Zhehao Huang**, Stockholm University, SE
  Three-dimensional electron diffraction for single crystal structural analysis of fragile materials

- **Mingjian Wu**, Uni Erlangen-Nürnberg, DE
  Scanning confocal electron diffraction: a dose efficient method for nanoscale crystallographic imaging

- **Penghan Lu**, Research Centre Jülich, DE
  Efficient electron phase contrast imaging: towards large field of view / minimum dose budget

- Panel discussion leader:
  Changlin Zheng, Fudan Uni., CN

In situ/environmental/ultrafast EM

- **Zhujun Wang**, ShanghaiTech University, CN
  The coalescence behavior of two-dimensional materials revealed by multiscale in situ imaging during chemical vapor deposition growth

- **Xuewen Fu**, Nankai University, CN
  Laser-free ultrafast electron microscopy based on RF-driven pulser

- **Hanglong Wu**, TU/e, NL
  Liquid-phase electron microscopy of beam-sensitive materials

- **Lin Tian**, University of Göttingen, DE
  Effect of hydrogen charging on the structure and mechanical properties of a Cu-Zr metallic glass

- **Pei Liu**, UAntwerpen, BE & DTU, DK
  Surface dynamics on supported Au nanoparticles: from 2D to 3D

- Panel discussion leader:
  Xi Liu, SH Jiao Tong Uni., CN

Quantification & data mining in EM

- **Jihan Zhou**, Peking University, CN
  4D atomic electron tomography

- **Xiaoke Mu**, KIT, DE
  Unveil local atomic bonds and packing of amorphous nanomaterials via local electron diffraction

- **Murat Yesibolati**, DTU, DK
  Electron inelastic mean free path and mean inner potential of liquid water

- **Feng Wang**, EMPA, CH
  Solving inverse problems with deep convolutional neural networks

- **Chen Huang**, University of Oxford, UK
  Machine learning application in high time resolution HRTEM imaging of defects

- Panel discussion leader:
  Dong Su, CAS Inst. Phys, CN

Advances in electron spectroscopy

- **Xiaoyan Li**, Paris-Sud University, FR
  Monochromated high energy resolution EELS: new insights into nanophysics

- **Yi Wang**, MPI for Solid State Research, DE
  Optimizing data acquisition and interpretation in STEM spectrum imaging

- **Dongsheng Song**, Anhui University, CN
  Measuring magnetism by transmitted electrons

- **Zezhong Zhang**, UAntwerpen, BE
  Quantitative STEM-EDX-EELS: can we do atom counting for multiple elements?

- Panel discussion leader:
  Xiaoyan Zhong, City Uni. of HK, CN

Want to Join the Workshop?

Registration is free of charge. Scan the QR code (or click the link below) and fill in the registration form. You will receive an email with a personal link to participate in the workshop.

https://fau.zoom.us/webinar/register/WN_nTl4QkxIQ7upRkyxWM4y-A

2nd Sino-European Early Career Researchers Workshop on Emerging Techniques and Applications in Electron Microscopy

07 - 10 December 2021, Europe morning / China late afternoon, online

This annual workshop is targeted to set up a regular bilateral forum for electron microscopists based in China and Europe. We invite colleagues, especially early career researchers and young PIs, to join us virtually, over four half-day in early December this year, to review the latest progress on emerging techniques and applications in electron microscopy. Four scientific sessions with round-table discussions as well as two forums for techno bite and career development will offer live interactions between invited guests and the participants.

Learning from & contributing to cryo-EM

- **(Keynote) Angus Kirkland**, Univ. Oxford, UK
  Cryo electron ptychography for biological applications

- **(Invited) Meng Gu**, SUSTech, CN
  Fundamental battery mechanism clarified by cryo-TEM

- **(Invited) Yifei Xu**, Fudan Univ., CN
  Understanding biomimetic mineralization processes using in-situ cryoTEM

- **(Invited) Katerina Naydenova**, MRC LMB, UK
  Three challenges in cryo-EM addressed by one grid technology

- **(Invited) Robert Bücker**, CSSB, DE
  Serial electron crystallography of proteins

- **(Invited) Ulrich Lorenz**, EPFL, CH
  Microsecond time-resolved cryo EM

Advancing in situ microscopy

- **(Keynote) Xuedong Bai**, IoP CAS, CN
  Structural & physical manipulation by developing *in-situ* electron microscopy technique

- **(Invited) Daniel J. Madsen**, Lund Univ., SE
  Real-time observation of vapor phase epitaxy of 1D semiconductors using *in-situ* TEM

- **(Invited) Aram Yoon**, Fritz Haber Institute, DE
  Visualizing structural changes in electrocatalysts using electrochemical cell electron microscopy

- **(Invited) Peter Schweizer**, EMPA, CH
  In situ microscopy on 2D materials

- **(Invited) Yang He**, USTB, CN
  In situ aberration corrected TEM on surface and interfacial phenomenon

- **(Invited) Michele Conroy**, ICL, UK
  Probing the dynamics of charged multiferroic topologies at the sub-atomic scale

Automation, data handling & deep learning

- **(Keynote) Christoph Koch**, HU Berlin, DE
  Exploring materials structure and properties on the nanoscale by computer-augmented electron microscopy

- **(Invited) Taiming Yang**, Stockholm Univ., SE
  Towards automated three dimensional electron diffraction: development and applications

- **(Invited) Jacob Madsen**, Univ. Vienna, AT
  Automated scanning transmission electron microscopy at atomic resolution: From data collection to analysis

- **(Invited) Wenquan Ming**, Hunan Univ., CN
  Electron tomography reconstruction by neural network

- **(Invited) Paul van Schayck**, Maastricht Univ., NL
  Resolving protein structures from CNN-assisted sub-pixel electron detection using event-driven detector

- **(Invited) Dieter Weber**, FZ Jülich, DE
  Live data processing with LiberTEM

Quantification in multi-dimensions

- **(Keynote) Xiaoxu Huang**, Chongqing Univ., CN
  Tomographic crystallography of dislocations

- **(Invited) Zhen Chen**, Tsinghua Univ., CN
  Multislice electron ptychography: The ultimate resolution and beyond

- **(Invited) Zhongbo Lee**, Ulm Univ., DE
  Integrated differential phase contrast-STEM employing a multi-sector detector for imaging thick samples

- **(Invited) Sean Collins**, Univ. Leeds, UK
  Combining spectroscopy, diffraction, and tomography to examine interfaces in MOF composites

- **(Invited) Daniel Wolf**, IFW Dresden, DE
  Holographic vector-field electron tomography of magnetic nanostructures

- **(Invited) Ivan Lobato**, UAntwerpen, BE
  3D reconstruction of colloidal nanoparticles in dried state from defocus series STEM datasets by using neural networks

Want to Join the Workshop?
Just scan the QR code or click the link below!
This workshop is sponsor-free, non-profit and free of charge for participation.
Please help us spread the information!
http://shorturl.at/mvCMZ

Organizers:
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Penghan Lu (FZ Juelich, DE)
Mingjian Wu (FAU Erlangen, DE)
Zezhong Zhang (UAntwerpen, BE)

2nd Sino-European Early Career Researchers Workshop on Emerging Techniques and Applications in Electron Microscopy
Topical Forums on *Techno bite* & *Career development*

08 & 09 December 2021, Europe 13:00-14:30 / China 20:00-21:30, online

Forum I
Techno bite: Innovation and democratization of scientific tools

The advent of novel instrumentation enables the discovery of exotic phenomena and thus facilitates the progress in science. In this sponsor-free forum, we invite industrial guests to present their innovative technology, especially on their recently released electron microscope-related products, as well as to share their opinions on the democratization of scientific tools, involving live discussion with the audience.

https://ideas.lego.com/projects/102b
2832-4574-4870-95a0-8698211d3fdf

Invited guests:
Giulio Guzzinati / Martin Linck / Heiko Müller (CEOS, DE)
CEFID – CEOS Energy Filtering and Imaging Device

Zhipeng Li (BestronST, CN)
INSTEMS – Atomic-resolution straining in situ TEM solution

Christian Monachon (Attolight, CH)
Mönch – Light collection / injection for CL-STEM

Barnaby Levin / Benjamin Bammes (Direct Electron, US)
Celeritas – Ultrafast pixelated STEM detector

Forum II
Career development: Quo vadis?

Planning a career in a professional setting can be challenging for junior researchers. In this forum, we invite guests at different stages of career, ranging from postdocs to faculty members, to share their views and experience on critical points about how to develop a successful and enjoyable career after academic training. The forum will be presented in live interviews involving discussions with the audience.

https://capital-placement.com/blog/the-whys-of-career-development/

Invited guests:
Xiaoxu Huang (Chongqing University, CN)
Dean of College MSE, established PI.

Michelle Conroy (Imperial College London, UK)
Royal Society University Research Fellow, recently appointed PI.

Aram Yoon (Fritz Haber Institute, DE)
Postdoc, Alexander-von-Humboldt Research Fellow.

Taimin Yang (Stockholm University, SE)
Postdoc, recent applicant to a very competitive research fellowship.

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