Official M&M Pre-Meeting Guide

https://doi.org/10.1017/S1431927612001699 Published online by Cambridge University Press

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GIF Quantum® The most advanced EFTEM and EELS systems

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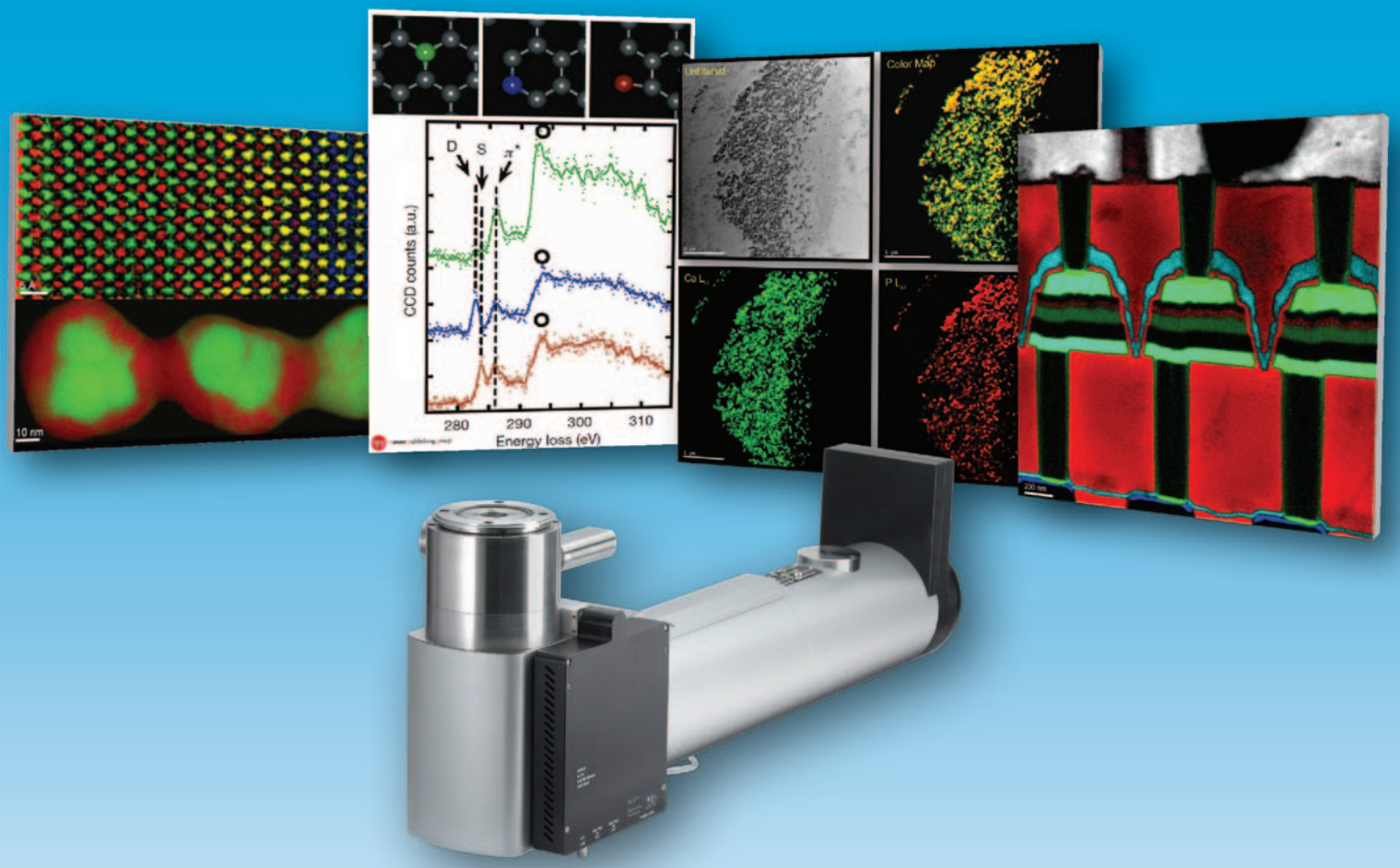

Images, left to right:

- (Top) Colorized elemental map showing Sr $L_{2,3}$-edges (green), Ti $L_{2,3}$-edges (red), La $M_{4,5}$-edges (yellow), and Mn $L_{2,3}$-edges (blue). Image captured using a Gatan Enfinium™ER. Sample courtesy of Prof. David Smith, Arizona State University. (Bottom) RGB composite EELS SI image of Au/Pd nanoparticle; Au $M_{4,5}$-edges at 2206 eV in green and Pd $L_{2,3}$-edges at 3173 eV in red. Low and high-loss regions of the EELS spectrum can be simultaneously acquired in DualEELS™ mode. Absolute quantification of the atoms is now possible for Au. Images captured using a Gatan GIF Quantum®ER. Sample courtesy Dr. Jianfang Wang of The Chinese University of Hong Kong.
- Figure 1 from: K. Suenaga et al. Atom-by-Atom spectroscopy analysis at graphene edge; Nature 468, 1088–1090 (23 December 2010). ELNES of individual atoms in grapheme. Different states of atomic coordination are illustrated at top. ELNES of carbon K (1s) spectra shown on bottom. Green, blue and red spectra correspond to the normal sp^2 carbon atom, a double-coordinated atom and a single coordinated atom, respectively. Images captured using a Gatan Quantum®ER Low-Voltage Special. Data courtesy of K. Suenaga and M. Koshino (AIST, Tsukuba, Japan). Permission to use Figure 1 granted by K. Suenaga and Nature Publishing Group. Copyright © 2010, rights managed by Nature Publishing Group.
- Unfiltered, conventional TEM image and elemental maps of a capillary blood vessel captured using a Gatan GIF Quantum®ER. The Ca and P elemental maps were extracted from an EFTEM-SI dataset acquired using Gatan's DigitalMicrograph® software. EFTEM-SI is capable of revealing relative concentrations below 1% as shown in the P elemental map. Sample courtesy of Dr. Wenlang Lin, Mayo Clinic.
- High-speed STEM EELS mapping of a commercial semiconductor device. Grey: Cu $L_{2,3}$-edges; Red: O K-edge; Blue: Co $L_{2,3}$-edges; Green: Ti $L_{2,3}$-edges; Light Blue: N K-edge. Data were extracted from a 520 x 520 EELS spectrum image (2 GB dataset) acquired in 5 minutes at 1000 spectra per second, high-speed EELS acquisition mode. Image captured using a Gatan GIF Quantum®ER EELS system mounted on a 200 kV LaB6 STEM.

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Phoenix, Arizona, USA • July 29–August 2, 2012

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