# Materials Research in an Aberration-Free Environment

Organizers: C. Kisielowski, Chris Kiely, B. Kabius, Ray Phaneuf, and F. Ross

Microscopy and Art: Strontium by G. Richter, Fine Arts Museums of San Francisco

**July 31-August 4, 2005**
**Hawaii Convention Center**
**Honolulu, Hawaii – USA**

**Program Symposium 43**
**Monday**

159 Potential, Practicalities and Problems of Aberration Minimized FESEM
E D Boyes; DuPont
Platform Invited
Day 1-Monday, 323C, 08:00

160 Resolution and Image Fidelity in STEM and TEM (HREM)
J C H Spence; Cambridge University
Platform Invited
Day 1-Monday, 323C, 08:30

161 On the Reciprocity of TEM and STEM
H Rose, C F Kisielowski; Lawrence Berkeley National Laboratory
Platform Invited
Day 1-Monday, 323C, 09:00

162 Imaging of Materials through Aberration Corrected STEM
A R Lupini, G M Veith, N J Dudney, M F Chisholm, K van Benthem, M Varela, A Y Borisevich, Y Peng, S N Rashkeev, S J Pennycook; Oak Ridge National Laboratory
Platform Invited
Day 1-Monday, 323C, 09:30

**10:00 - 10:30 Break**

164 Obstacles on the Road Towards Atomic Resolution Tomography
D Van Dyck, S Van Aert, M D Croitoru; University of Antwerp
Platform Invited
Day 1-Monday, 323C, 10:30

165 Annular Dark Field Tomography in TEM
S Bals; University of Antwerp; C F Kisielowski; Lawrence Berkeley National Laboratory; M Croitoru, G Van Tendeloo; University of Antwerp
Platform Invited
Day 1-Monday, 323C, 11:00

166 Atomic Resolution Electron Tomography on a Discrete Grid: Atom Count Errors
K J Batenburg; Leiden University; J R Jinschek, C F Kisielowski; Lawrence Berkeley National Laboratory
Platform Student
Day 1-Monday, 323C, 11:30

167 Atomic Precision Measurement of Individual Atom Positions in Defects by Aberration Corrected HRTEM
L Houben, A Thust, K Urban; Research Centre Juelich, Germany
Platform Invited
Day 1-Monday, 323C, 11:45

**12:15 – 13:30 Break**

168 Atomic Motion Observed with the IBM Sub-Angstrom STEM
P E Batson; IBM Thomas J. Watson Research Center
Platform, Invited
Day 1-Monday, 323C, 13:30

169 Resolution Limit Measured by Fourier Transform: 0.61 Angstrom Information Transfer through HAADF-STEM
Y Peng, A Y Borisevich, A R Lupini, S J Pennycook; Oak Ridge National Laboratory
Platform
Day 1-Monday, 323C, 14:00

170 High Angle Annular Dark Field Imaging On and Away from the Pole
A Bleloch; SuperSTEM Laboratory, UK; P Wang; Liverpool University, UK; U Falke; SuperSTEM Laboratory, UK; P Goodhew; Liverpool University, UK
Platform
Day 1-Monday, 323C, 14:15

172 Advantages of Cs-correctors for Spectrometry in STEM
M Watanabe, D W Ackland, A Burrows, C J Kiely, D B Williams; Lehigh University; M Kanno, R Hynes; JEOL USA
Platform
Day 1-Monday, 323C, 14:30

173 Performance of a new Monochromator for a 200 kV Analytical Electron Microscope
M Mukai, T Kaneyama, T Tomita, K Tsuno; JEOL; M Terauchi, K Tsuda; Tohoku University, Japan; M Naruse, T Honda; JEOL; M Tanaka; Tohoku University, Japan
Platform
Day 1-Monday, 323C, 14:45

174 Design and Performance Characteristics of the ORNL Advanced Microscopy Laboratory and JEOL 2200FS-AC Aberration-Corrected STEM/TEM
L F Allard, D A Blom; Oak Ridge National Laboratory; M A O'Keefe; Lawrence Berkeley National Laboratory; S Mishina; JEOL USA
Platform
Day 1-Monday, 323C, 15:00

175 Aberration Corrected Microscopy and Moore's Law: Capabilities Aiding Progress for the Next Decade
J Mardinly; Intel
Platform
Day 1-Monday, 323C, 15:15

## Monday Posters

279 Cross-sectional Observations of Surface Structures on MgO{100} by Cs-corrected TEM
J Yamasaki, N Tanaka, Y Nakagaki, S Fukami; Nagoya University; H Sawada; JEOL, Japan
Poster
Day 1-Monday, Exhibit Hall, 15:30

280 Transport of Intensity Equation Applied to Study Quasi-Dynamic Surface and Boundary Reconstruction
K Ishizuka; HREM Research, Japan
Poster
Day 1-Monday, Exhibit Hall, 15:30

281 Three-Dimensional Aberration-Free Imaging Recovery by the Oversampling Method and Tomography
W-Y Yen, F-R Chen, J-J Kai; National Tsing-Hua University, Taiwan
Poster Student
Day 1-Monday, Exhibit Hall, 15:30

282 Measurement of 3rd Order Spherical Aberration Coefficient for Scanning Transmission Electron Microscopy
Y Kotaka; Fujitsu; T Yamazaki; Tokyo University of Science; K Watanabe; Tokyo Metropolitan College of Technology; Y Kikuchi; MIRAI Project; N Nakanishi, I Hashimoto; Tokyo University of Science
Poster
Day 1-Monday, Exhibit Hall, 15:30

## Tuesday

501 Aberration Free Microscopy for Life Science Applications
J M Plitzko; Max-Planck-Institute of Biochemistry; B Freitag; FEI; R Hegerl; Max-Planck-Institute of Biochemistry; U Luecken; FEI
Platform
Day 2-Tuesday, 323C, 08:00

502 The TEAM Project - An Update
U Dahmen; Lawrence Berkeley National Laboratory
Platform Invited
Day 2-Tuesday, 323C, 08:15

503 Design Features and Ultimate Performance of an Ultra-High Resolution Aberration-Corrected, Monochromatized 200 keV FEG-TEM
A E Thesen, M Matijevic, G Benner; Carl Zeiss
Platform
Day 2-Tuesday, 323C, 08:30

504 First Experiences using Electron Holography with a Cs-Corrected TEM
M Lehmann, D Geiger, H Lichte; Dresden University
Platform
Day 2-Tuesday, 323C, 08:45

505 The Design and First Results of a Dedicated Corrector (S)TEM.
M A van der Stam, P Tiemeijer, B Freitag, M Stekelenburg, J Ringnalda; FEI, The Netherlands
Platform
Day 2-Tuesday, 323C, 09:00

506 Cs Corrected Bright Field Imaging of Radiation Sensitive Materials
M Malac; National Institute for Nanotechnology, Canada; M Beleggia; Brookhaven National Laboratory; R F Egerton; University of Alberta; Y Zhu; Brookhaven National Laboratory
Platform
Day 2-Tuesday, 323C, 09:15

507 An Assessment of Imaging Models for Exit Wave Restoration
A I Kirkland, L-Y Chang; Oxford University
Platform
Day 2-Tuesday, 323C, 09:30

508 Contrast Transfer Theory for Transmission Electron Microscopes Equipped with a Wien-Filter Monochromator
M Lentzen, A Thust; Research Centre Juelich, Germany
Platform
Day 2-Tuesday, 323C, 09:45

**10:00 - 10:30 Break**

278 Toward Z-Contrast HRTEM by Reversed Multislice Process

F-R Chen; National Tsing-Hua University, Taiwan; C Kisielowski, J Jinshek; Lawrence Berkeley National Laboratory; J M Plitzko; Max-Planck-Institut fuer Biochemie; J-J Kai; National Tsing-Hua University, Taiwan

Platform Invited

Day 2-Tuesday, 323C, 10:30

171 Design and Testing of a Quadrupole/Octupole C3/C5 Aberration Corrector

N Dellby, O L Krivanek, M F Murfitt; Nion; P D Nellist; Trinity College, Ireland

Platform Invited

Day 2-Tuesday, 323C, 11:00

**12:00 – 13:30 Break**

510 **Roundtable Discussion, K. Urban (chair) & FIG Business Meeting**

Platform

Day 2-Tuesday, 323C, 1:30 –3:30