

Christoph T. Koch - Invited Talks

Institute for Experimental Physics, Ulm University, 89069 Ulm, Germany
Tel: +49 731 50 36400 , email: christoph.koch@uni-ulm.de
URL: elim.physik.uni-ulm.de

2013

International conferences:

1. *Japanese-German Symposium on Structures and Control of Interfaces*, Jan. 9-11, 2013 in Berlin, Germany: [C.T. Koch](#), "Interface potentials in ceramics studied by inline electron holography and impedance spectroscopy"
2. *Merging Atomistic and Continuum Analysis of Nanometer Length-Scale Metal-Oxide Systems for Energy and Catalysis Applications*, April 21-23, 2013 in Haifa, Israel: [C.T. Koch](#), "Using Dynamically Scattered Electrons for Retrieving 3D Atomic Positions in Nanoparticles"

Workshops, schools, and colloquia:

3. *LEM Seminar*, Jan. 21, 2013 in Karlsruhe, Germany: [C.T. Koch](#), "Reconstruction of potentials, strain, and 3D atomic positions from image and diffraction data in the transmission electron microscope"
4. *School on Quantitative Electron Microscopy (QEM2013)*, May 13 - 25, 2013 in St. Aygulf, France: [C.T. Koch](#), "Quantitative image simulations for TEM and STEM"
5. *Seminar am Lehrstuhl für Ultraschnelle Nano-Optik*, Universität Oldenburg, Germany, March 07, 2013 in Oldenburg, Germany: [C.T. Koch](#), "Holography with (fast) electrons"

Invited as session chair:

6. *Frontiers of Electron Microscopy in Materials Science (FEMMS)*, Sept. 5 - 9, 2013 in Lorne, Australia: "Modelling and Simulation in Microscopy"

2012

International conferences:

7. *Asia-Pacific Microscopy Conference APMC 10 / ICONN 2012 / ACMM 22*, Feb. 5-9, 2012 in Perth, Australia: [C.T. Koch](#), "Aberration-Compensated Large-Angle Rocking-Beam Electron Diffraction (LARBED)".
8. *The 15th European Microscopy Congress EMC2012*, Sept. 16-21, 2012 in Manchester, UK: [C.T. Koch](#), "Simulating TEM/STEM images from scratch" *Pre-Congress Workshop on 'TEM Image Simulation'*.
9. *nano3D-Kassel 2012*, Oct. 18-19, 2012 in Kassel, Germany: [C.T. Koch](#), "Exploring the wealth of information in elastic electron scattering"

Workshops, schools, and colloquia:

10. *Seminar at the Erich Schmid Institute of the Austrian Academy of Sciences*, Jan. 24, 2012 in Leoben, Austria: [C.T. Koch](#), "Locating Atoms with Picometer Precision".
11. *Workshop on Aberration-Corrected Electron Microscopy*, Jul. 11-13, 2012 at Ringberg Castle, Tegernsee, Germany: [C.T. Koch](#), "What's next? Possible not so distant developments in TEM".
12. *Advances in Data Acquisition and Processing in Electron Microscopy* Oct. 1-3, 2012 in Poitiers, France: [C.T. Koch](#), "Reconstructing 3D atom positions from images and diffraction patterns acquired at varying beam tilt".

2011

13. *Seminar at Humboldt University Berlin*, Oct. 24, 2012 in Berlin, Germany: C.T. Koch, "Reconstruction of electrostatic fields, strain, and 3D atomic positions from image and diffraction data in the transmission electron microscope".
14. *Teacher's Colloquium* Nov. 13, 2012 in Ulm, Germany: C.T. Koch, "Tanzende Elektronenstrahlen und unscharfe Elektronenoptik: Neue Experimente zur präzisen Lokalisierung von Atomen".

International conferences:

15. *XIV International Conference on Electron Microscopy EM 2011*, June 26-30, 2011 in Wisla, Poland: C.T. Koch, "Applications of Bright- and Dark-Field Inline Electron Holography"
16. *Current Topics in Transmission Electron Microscopy: "Plasmonics" and "Tomography"* July 27-30, 2011 at Ringberg Castle, Germany: C.T. Koch, "3D Strain Mapping"
17. *Microscopy Conference MC 2011*, Aug. 28 - Sept. 2, 2011 in Kiel, Germany: C.T. Koch, "QSTEM and QMB: How to build complex super cells for TEM/STEM image simulations - from scratch and within minutes"
18. *NCEM/Molecular Foundry 2011 Users' Meeting*, October 5-6 in Berkeley, CA: C.T. Koch, "2D and 3D Electron Holography without a Biprism" (Plenary Lecture)

Workshops, schools, and colloquia:

19. *Lecture (2 hours)* April 7, 2011 in Haifa, Israel: C.T. Koch, "Quantitative Simulation of STEM and TEM Images"
20. *Series of three Lectures (2 hours each) at Sabanci University*, May 23-26, 2011 in Istanbul, Turkey: C.T. Koch,
 - 1) "The theory of High-Resolution Transmission Electron Microscopy",
 - 2) "TEM and STEM Image Simulations",
 - 3) "Advanced Data Analysis Techniques in TEM"
21. *43rd Erice Crystallographic Course "Electron Crystallography"*, June 2-12 in Erice, Italy: C.T. Koch, "Large-Angle Rocking-Beam Electron Diffraction: Exploring the 4th Dimension"
22. *SALVE Summer Workshop*, July 25-27, 2011 in Riezlern, Austria: C.T. Koch, "Using Multiple Scattering and Ewald Sphere Curvature for 3D Potential Reconstruction"
23. *International workshop on "Reliability-limiting kinetics: Experiments and Simulation"*, October 12, 2011 in Dresden, Germany: C.T. Koch, "Dark-field inline electron holography: An efficient, simple, and precise way to map strain with nanometer resolution in semiconductor devices"
24. *Physikalisches Kolloquium*, Nov. 11, 2011 at Ulm University: C.T. Koch, "Locating atoms with picometer precision".

Invited as session chair:

25. *Congress of the International Union of Crystallography (IUCr)*, Aug. 22 - 30, 2011 in Madrid, Spain: "Electron Diffraction and Crystallography"

2010

International conferences:

26. *Tonomura FIRST International Workshop on "Challenges to New Developments in Electron Microscopy"*, Sept. 8-10, 2010 in Tokyo, Japan: C.T. Koch, "Inline Electron Holography: Resolution, Sensitivity and its Potential for 3D Atomic Resolution Imaging"
27. *Microscopy and Microanalysis*, Aug. 1 - 5, 2010 in Portland, OR, USA: C.T. Koch, "Quantitative analysis of crystal defects: Towards 3-dimensional imaging of charge densities and atomic structure by inline electron holography"
28. *International Conference on Electron Microscopy and Allied Fields & XXXI Annual Meeting of the Electron Microscopy Society of India*, Mar. 7 - 10, 2010 in Mumbai, India: C.T. Koch, "Mapping Strain by Dark-Field Inline Electron Holography"

Workshops, schools, and colloquia:

29. *Seminar at the Institute of Theoretical and Applied Physics at Stuttgart University*, Nov. 16, 2010 in Stuttgart, Germany: C.T. Koch, "Can we measure charges at grain boundaries in ceramics?"
30. *Seminar at Carl Zeiss SMT*, Sept. 17, 2010 in Oberkochen, Germany: C.T. Koch, "New TEM Experiments using the Zeiss SESAM"
31. *4th Workshop on Aberration Corrected STEM*, July 2-5, 2010 in Daresbury, UK: C.T. Koch, "Quantitative STEM simulations"
32. *Festkolloquium "Sichtbare Atome"*, April 19, 2010 at the Fraunhofer IZPF in Dresden, Germany: C.T. Koch, "Mapping strain in semiconductors by dark-field inline electron holography"

2009

International conferences:

33. *Merging Atomistic and Continuum Analysis of Nanometer Length-Scale Metal-Oxide Systems for Energy and Catalysis Applications*, Nov. 14 - 17, 2009 in Berlin, Germany: C.T. Koch, "What can inline holography tell us about charges at grain boundaries in ceramics?"
34. *International Workshop on Interfaces in Functional Materials*, Oct. 19 - 24, 2009 at the Bear Creek Inn, Macungie, PA USA: C.T. Koch, "Interface potentials in ceramics"
35. *Frontiers of Electron Microscopy in Materials Science (FEMMS)*, Sept. 27 - Oct. 2, 2009 in Nagasaki, Japan: C.T. Koch, "Mapping Strain by Dark-Field Inline Electron Holography"
36. *Understanding Materials through Electron Microscopes: Realising the Potential*, April 22 - 24, 2009 at Imperial College, London: C.T. Koch, "Realizing the Potential by and of Electron Holography"

Workshops, schools, and colloquia:

37. *Physikalisches Kolloquium*, Nov. 3, 2009 at the Technische Universität Dresden, Germany: C.T. Koch, "Fast yet sensitive: Exciting experiments with relativistic electrons"
38. *Paul Peter Ewald Colloquium*, July 17, 2009 at the MPI for Metals Research in Stuttgart, Germany: C.T. Koch, "The whole truth at highest resolution: holography with fast electrons"

39. *TEM Workshop*, May 7 - 8, 2009 at University of Oslo, Norway: C.T. Koch, "Various kinds of electron holography and what holography can tell us about charges at grain boundaries"
40. *TEM Workshop*, May 7 - 8, 2009 at University of Oslo, Norway: C.T. Koch, "Advances in EELS and EFTEM instrumentation"
41. *EMAT Winter Workshop*, Jan. 12 - 30, 2009 at University of Antwerp, Belgium: C.T. Koch, "Advances in EELS instrumentation" (3 h)

2008

International conferences:

42. *European Microscopy Congress*, Sept. 1 - 5, 2008 in Aachen, Germany: C.T. Koch, "Quantitative TEM and STEM Simulations"
43. *Gordon Conference on High Temperature Materials, Processing and Diagnostics*, July 20 - 25, 2008 in Waterville, ME, USA: C.T. Koch, "Mapping potentials at grain boundaries in ceramics by nonlinear in-line electron holography"
44. *Interfaces in Ceramics*, June 22 - 26, 2008 in Santaigo de Compostella, Spain: C.T. Koch, "Mapping grain boundary potentials and space charge in ceramics"
45. *International Workshop on Functionality of Interfaces*, April 15 - 18, 2008 in Shanghai, China: C.T. Koch, "Electron Inline Holography of interfaces"

Workshops and seminars:

46. *Group Seminar*, Nov. 25, 2008 at the Electron Microscopy Center of the Materials Science Department of the Technion, Haifa, Israel: C.T. Koch, "3-dimensional atomic structures from dynamically diffracted electrons"
47. *Diffraction Club*, Oct 2008, at the Max Planck Institute for Metals Research, Stuttgart, Germany: C.T. Koch, "Many-Beam Solution to the Phase Problem in Crystallography"
48. *Group Seminar*, May 20, 2008 at the Hahn-Meitner-Institut, Berlin, Germany: C.T. Koch, "Electron Inline Holography and its Application to Grain Boundaries"
49. *ESTEEM Holography Workshop*, May 12 - 15, 2008 at the Technical University Dresden, Germany: C.T. Koch, "Various alternatives to off-axis electron holography"

2007

International conferences:

50. *Frontiers of Electron Microscopy in Materials Science (FEMMS)*, Sept 23 - 28, 2007 at the DoubleTree Hotel, Sonoma County, CA, USA: C.T. Koch, "Nonlinear Inline Electron Holography"
51. *Microscopy Conference, MC2007*, Sept. 2 - 7, 2007 in Saarbrücken, Germany: C.T. Koch, "The Dynamic Inversion Problem"
52. *Microscopy Conference, MC2007*, Sept. 2 - 7, 2007 in Saarbrücken, Germany: C.T. Koch, "Mapping Grain Bondary Potentials by Inline Electron Holography"
53. *European Mataterials Research Society (E-MRS) Spring Meeting*, May 28 - June 1, 2007 in Strasbourg, France: C.T. Koch, "Mapping grain boundary potentials using inline electron holography"

Workshops, schools, and seminars:

54. *Winter HAADF and EELS Workshop (WHEW)*, Dec. 10 - 12, 2007 at Orsay, France: C.T. Koch, "Simulating HAADF-STEM images"

55. *Group Seminar*, Nov 28, 2007 at the Ernst-Ruska-Center, Forschungszentrum Jülich: C.T. Koch, "Nonlinear Inline Electron Holography"
56. *Faculty Seminar*, Sept. 21, 2007 at the Department of Chemistry, LMU Munich, Germany: C.T. Koch, "Doing Materials Science with Interfering Electron Waves"

2006

International conferences:

57. *16th International Microscopy Congress (IMC-16)*, Sept. 3 - 8, 2006 in Sapporo, Japan: C.T. Koch, "Diffraction Tomography and its Application to Intergranular Glassy Films in Ceramics"

Seminars:

58. *Seminar at Universität Ulm, May 16, 2006*: C.T. Koch, "Dynamical and Thermal Diffuse Scattering"
59. *Seminar at Université Paris-Sud, Orsay, June 7, 2006*: C.T. Koch, "Dynamical and Thermal Diffuse Scattering"

2005

International conferences:

60. *Frontiers of Electron Microscopy in Materials Science (FEMMS)*, Sept. 25 - 30, 2005 at Kasteel Vaalsbroek, Netherlands: C.T. Koch, "Examination of Intergranular Glassy Films by Energy-Filtered Electron Diffraction"
61. *107th Annual Meeting of the American Ceramic Society*, April 10 - 13, 2005 in Baltimore, MD, USA: C.T. Koch, Z. Zhang, S. Bhattacharyya, A. Subramaniam and M. Rühle, "Experimental Studies of Intergranular Glassy Films by different TEM techniques"

Schools:

62. *School on Quantitative Electron Microscopy (QEM2005)*, Sept. 25 - Oct 7, 2005 in St. Aygulf, France: C.T. Koch, "Quantitative Convergent Beam Electron Diffraction"

2004

International conferences:

62. *3^d Congress of the Brazilian Materials Research Society*, Oct. 10 - 13, 2004 in Foz do Iguacu, Brazil: C.T. Koch, "Solving Materials Science Problems by Energy-Filtered Electron Diffraction"
63. *Euroconference on Interfaces in Nanostructured Materials*, June 6 - 11, 2004 at Kloster Irsee, Germany: C.T. Koch, "New Techniques for Analysing Nano-Interfaces in Materials Science and Biology using Electron Diffraction"