

## Christoph T. Koch - Invited Talks & Invited Session Chairs

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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. *Computational Methods in Transmission Electron Microscopy*, Jan. 23-26, 2013 at Ringberg Castle, Tegernsee, Germany: [C.T. Koch](#), "Harnessing the wealth of information contained in elastic electron scattering".
3. *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"
4. *Microscopy Conference 2013 (MC2013)*, Aug. 25 - 30, 2013 in Regensburg, Germany: [C.T. Koch](#), "Nonlinear electron tomography"
5. *International Congress on X-Ray Optics and Microanalysis 22 (ICXOM22)*, Sept. 2-6, 2013 in Hamburg, Germany: [C.T. Koch](#), "Making use of dynamical scattering of fast electrons in the TEM for retrieving 3D atom positions in nanoparticles" (*Plenary lecture*)

### *Workshops, schools, and colloquia:*

6. *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"
7. *Seminar am Lehrstuhl für Ultraschnelle Nano-Optik*, Universität Oldenburg, Germany, March 07, 2013 in Oldenburg, Germany: [C.T. Koch](#), "Holography with (fast) electrons"
8. *School on Quantitative Electron Microscopy (QEM2013)*, May 13 - 25, 2013 in St. Aygulf, France: [C.T. Koch](#), "Quantitative image simulations for TEM and STEM"
9. *Advanced TEM Applications Workshop*, Sept. 20, 2013 in Ljubljana, Slovenia: [C.T. Koch](#), "Reconstructing the lives of fast electrons: Solving the inverse problem of dynamical electron diffraction in both real and reciprocal space"
10. *Seminar at Carl-Zeiss Microscopy GmbH*, Sept. 23, 2013 in Jena, Germany: [C.T. Koch](#), "Tanzende Elektronenstrahlen und unscharfe Elektronenoptik: Neue Methoden zur präzisen Lokalisierung von Atomen"
11. *Physics Colloquium at Warwick University*, Oct. 9, 2013 in Coventry, UK: [C.T. Koch](#), "Reconstructing the lives of fast electrons: Solving the inverse problem of dynamical electron diffraction in both real and reciprocal space"
12. *Ulmer 3-Generationen-Uni*, Nov. 22, 2013 in Ulm, Germany: [C.T. Koch](#), "Schnelle Elektronen machen Atome sichtbar"

2012

*International conferences:*

13. *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)".
14. *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'*.
15. *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:*

16. *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".
17. *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".
18. *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".
19. *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".
20. *Teacher's Colloquium* Nov. 13, 2012 in Ulm, Germany: C.T. Koch, "Tanzende Elektronenstrahlen und unscharfe Elektronenoptik: Neue Experimente zur präzisen Lokalisierung von Atomen".

2011

*International conferences:*

21. *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"
22. *Current Topics in Transmission Electron Microscopy: "Plasmonics" and "Tomography"* July 27-30, 2011 at Ringberg Castle, Germany: C.T. Koch, "3D Strain Mapping"
23. *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"
24. *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:*

25. *Lecture (2 hours)* April 7, 2011 in Haifa, Israel: C.T. Koch, "Quantitative Simulation of STEM and TEM Images"
26. *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"

27. *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"
28. *SALVE Summer Workshop*, July 25-27, 2011 in Riezlern, Austria: [C.T. Koch](#), "Using Multiple Scattering and Ewald Sphere Curvature for 3D Potential Reconstruction"
29. *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"
30. *Physikalisches Kolloquium*, Nov. 11, 2011 at Ulm University: [C.T. Koch](#), "Locating atoms with picometer precision".

## 2010

### *International conferences:*

31. *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"
32. *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"
33. *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:*

34. *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?"
35. *Seminar at Carl Zeiss SMT*, Sept. 17, 2010 in Oberkochen, Germany: [C.T. Koch](#), "New TEM Experiments using the Zeiss SESAM"
36. *4th Workshop on Aberration Corrected STEM*, July 2-5, 2010 in Daresbury, UK: [C.T. Koch](#), "Quantitative STEM simulations"
37. *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:*

38. *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?"
39. *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"
40. *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"

41. *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:*

42. *Physikalisches Kolloquium*, Nov. 3, 2009 at the Technische Universität Dresden, Germany: C.T. Koch, "Fast yet sensitive: Exciting experiments with relativistic electrons"
43. *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"
44. *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"
45. *TEM Workshop*, May 7 - 8, 2009 at University of Oslo, Norway: C.T. Koch, "Advances in EELS and EFTEM instrumentation"
46. *EMAT Winter Workshop*, Jan. 12 - 30, 2009 at University of Antwerp, Belgium: C.T. Koch, "Advances in EELS instrumentation" (3 h)

**2008**

*International conferences:*

47. *European Microscopy Congress*, Sept. 1 - 5, 2008 in Aachen, Germany: C.T. Koch, "Quantitative TEM and STEM Simulations"
48. *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"
49. *Interfaces in Ceramics*, June 22 - 26, 2008 in Santaigo de Compostella, Spain: C.T. Koch, "Mapping grain boundary potentials and space charge in ceramics"
50. *International Workshop on Functionality of Interfaces*, April 15 - 18, 2008 in Shanghai, China: C.T. Koch, "Electron Inline Holography of interfaces"

*Workshops and seminars:*

51. *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"
52. *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"
53. *Group Seminar*, May 20, 2008 at the Hahn-Meitner-Institut, Berlin, Germany: C.T. Koch, "Electron Inline Holography and its Application to Grain Boundaries"
54. *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:*

55. *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"
56. *Microscopy Conference, MC2007*, Sept. 2 - 7, 2007 in Saarbrücken, Germany: C.T. Koch, "The Dynamic Inversion Problem"
57. *Microscopy Conference, MC2007*, Sept. 2 - 7, 2007 in Saarbrücken, Germany: C.T. Koch, "Mapping Grain Boundary Potentials by Inline Electron Holography"
58. *European Materials 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:*

59. *Winter HAADF and EELS Workshop (WHEW)*, Dec. 10 - 12, 2007 at Orsay, France: C.T. Koch, "Simulating HAADF-STEM images"
60. *Group Seminar*, Nov 28, 2007 at the Ernst-Ruska-Center, Forschungszentrum Jülich: C.T. Koch, "Nonlinear Inline Electron Holography"
61. *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:*

62. *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:*

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

**2005***International conferences:*

65. *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"
66. *10<sup>th</sup> 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:*

67. *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:*

67. *3<sup>rd</sup> 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"
68. *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"

**Invited as  
session chair:**

1. *Frontiers of Electron Microscopy in Materials Science (FEMMS)*, Sept. 5 - 9, 2013 in Lorne, Australia: "Modelling and Simulation in Microscopy"
2. *Microscopy Conference 2013 (MC2013)*, Aug. 25 - 30, 2013 in Regensburg, Germany: "Advances in Light and Electron Optics"
3. *Congress of the International Union of Crystallography (IUCr)*, Aug. 22 - 30, 2011 in Madrid, Spain: "Electron Diffraction and Crystallography"