Karin Sigloch

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Education

Princeton University, Princeton, N.J.
Ph.D. candidate, Department of Geosciences, September 2002–present.
M.A. in Geosciences, January 2004.
Dissertation research in geophysics/global seismic tomography: Measuring finite-frequency amplitudes and travel times of teleseismic body waves; inversion of this novel data for Earth's 3-dimensional mantle structure.

Bell Laboratories, Lucent Technologies, Murray Hill, N.J, 2001–2002.
Research work for master's thesis in Electrical and Computer Engineering.
Implemented and tested a new method for time-frequency estimation of wireless radio channels.

University of Karlsruhe, Karlsruhe, Germany, 1996–1999, and
Institut National Polytechnique de Grenoble, School of Electrical Engineering (ENSIEG), Grenoble, France, 1999–2001.
Studies in Electrical and Computer Engineering in German-French cooperative 5-year program. Concentrated in signal processing and control systems engineering. Ranked in 95th percentile in both countries. German and French M.Eng. degrees awarded in March 2002.

Justus-Knecht-Gymnasium Bruchsal, Abitur (high school diploma) 1995.

Professional Experience

Summer Intern, June–Aug. 2006. Schlumberger-Doll Research, Ridgefield, Connecticut. Designed and implemented a seismic processing chain for P-wave tomography between two boreholes in the context of gas hydrate exploration.

Research Consultant, July–Sept. 2002. Bell Laboratories, Lucent Technologies, Murray Hill, N.J. Employed as R&D consultant on CDMA cellular wireless systems.

Summer Intern, July–Sept. 2000. Baden-Württemberg Academy for Technology Assessment, Stuttgart, Germany. Compared and evaluated best practices for sustainable industrial development in different regions of Germany. Co-authored the project report to the state government.

Research Assistant, Aug. 1997–April 1998. Department of Computer Science, University of Karlsruhe. Software development in Java for a speech recognition system.

Intern, July–Sept. 1996. SEW Eurodrive, Bruchsal, Germany.
Internship with major manufacturer of electrical drives. Gained hands-on experience in use of tool machines, metal processing, electrical installations.

Voluntary Social Year, July 1995–June 1996. Arbeiterwohlfahrt, Spielberg, Germany. Volunteered in a home for multiply handicapped adults. Responsibilities were comparable to a nurse assistant.

Teaching

Course Coordinator and Website Builder, "ENV/WWS 524 – World Oil and the Middle East" (Socolow), graduate seminar featuring guest lecturers from government and industry, Princeton, fall 2005.

Grader, "GEO 210 – Earthquakes, Volcanoes, and Other Hazards" (Nolet/Rubin), introductory course for non-majors, Princeton, spring 2006.

Assistant Instructor, "GEO 255/AST255 – Life in the Universe" (Onstott), astrobiology course focused around a one-week field trip to Yellowstone, Princeton, fall 2004.

Laboratory Instructor, "GEO 225 – Earth: The Physical Environment" (Dahlen), introductory class for geophysics/geology majors, Princeton, fall 2004.

Assistant Instructor, "GEO 416 – Evolution of the Continents" (Hollister), focused around a one-week field trip in Arizona, Utah, Nevada, and California, Princeton, spring 2004.

Laboratory Instructor, "GEO 210 – Earthquakes, Volcanoes, and Other Hazards" (Nolet/Rubin), Princeton, spring 2003.

Awards

Dodds Honorific Fellowship, merit-based full stipend and tuition for final year of Ph.D. studies (16 per year spread over all academic fields), The Graduate School, Princeton University, 2006.

Arnold Guyot Award, for excellence in undergraduate teaching, Princeton Geosciences Department, 2005.

Dusenbury Prize, first-year graduate award, Princeton Geosciences, 2002.

Jürgen Ulderup Foundation Fellowship, one-year full stipend for studies in the United States, 2001– 2002.

Honorific Fellowship, University of Karlsruhe, 1999–2001, two-year stipend for studies in France.

German National Academic Foundation ("Studienstiftung des deutschen Volkes"), 1996–2002. Government stipend based on academic merit and leadership promise, awarded to <1% of German university students.

Landeswettbewerb Deutsche Sprache und Literatur, 1995. First prize in state-wide essay competition in German language and literature, for high school students in Baden-Württemberg.

Publications

K. Sigloch and G. Nolet, Measuring finite-frequency body wave amplitudes and travel times. Geophysical Journal International 167 (1), pp. 271-287, 2006.

K. Sigloch, M.R. Andrews, P.P. Mitra, D.J. Thomson, Communicating over nonstationary nonflat wireless channels, IEEE Transactions on Signal Processing, v 53, n 6, pp. 2216-2227, June 2005.

Patents

M.R. Andrews, P.P. Mitra, K. Sigloch, D.J. Thomson, Techniques for communication over single- or multiple-antenna channels having both temporal and spectral fluctuations.

Talks

Princeton Geosciences Dept., March 30, 2007. Finite-frequency body-wave tomography using finite-frequency data.

Queen's University, Kingston, Ontario, Feb. 2, 2007. Finite-frequency body-wave tomography using finite-frequency data.

Ruhr-Universität Bochum, Germany, July 2005. Measuring finite-frequency body-wave amplitudes and travel times for global tomography.

European Geosciences Union General Assembly, Vienna, Austria, April 2005.
K. Sigloch and G. Nolet, A method to measure finite-frequency amplitudes and travel times of teleseismic body waves, EGU05-A-02359; SM11-1MO4O-001.

URSI National Radio Science Meeting, Boulder, Colorado, Jan. 2002.
Sigloch, K., Mitra, P.P., Thomson, D.J., Andrews, M.R., Communicating over multi-antenna wireless channels with both temporal and spectral fluctuations.

Posters

Gordon Research Conference "Interior of the Earth," June 10-15, 2007, Mt. Holyoke, Massachussetts. K. Sigloch and G. Nolet, Finite-frequency P-Wave Tomography under the U.S.

AGU Fall Meeting 2006, San Francisco. K. Sigloch and G. Nolet (2006), Finite-frequency P-Wave Amplitudes and Traveltimes in the U.S., Eos Trans. AGU, 87(52), Fall Meet. Suppl., Abstract S51A-1262.

Geoinformatics 2006, Reston, Virginia, May 10-12, 2006. K. Sigloch, Computational tools for finite-frequency seismic tomography, Geoinformatics 2006 Abstracts, USGS Scientific Investigations Report 2006-5201.

AGU Fall Meeting 2005, San Francisco. K. Sigloch and G. Nolet (2005), Finite-frequency P Wave Amplitudes and Travel Times Measured in the Western U.S., Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract S33A-0307.

EarthScope National Meeting, Santa Ana Pueblo, NM, March 29-31, 2005. K. Sigloch and G. Nolet, Measuring Finite-frequency Amplitudes and Travel Times of Teleseismic Body Waves.

Symposium on the Study of the Earth's Deep Interior (SEDI), Garmisch-Partenkirchen, Germany, July 4-9, 2004. K. Sigloch and G. Nolet, Measuring finite-frequency P-wave amplitudes of shallow, teleseismic earthquakes.

AGU/CGU/SEG Joint Assembly Spring 2004, Montreal, Canada, May 17-21, 2004. K. Sigloch and G. Nolet, Measuring Body Wave Amplitudes of Shallow Earthquakes, Eos Trans. AGU, 85(17), Jt. Assem. Suppl., Abstract S51B-06.

Workshops

SPICE Research and Training Workshop, Cargese, Corsica, May 13-19, 2007. Wave/rupture propagation and imaging in complex media, applied to seismology and other fields.

Short Course in Sequence Stratigraphy (16 hrs), GSA Meeting, Philadelphia, Oct. 20-21, 2006. Taught by Art Donovan (BP) and Kirt Campion (Exxon).

SPICE Research and Training Workshop, Venice, Italy, Sept. 25-Oct. 2, 2004. Numerical methods applied to wave propagation problems.

Master Class on Lecturing (16 hrs), McGraw Center for Teaching and Learning, Princeton, fall 2004. Hands-on workshop class taught by eight distinguished lecturers (Princeton senior faculty).

MYRES-I workshop, "Heat, Helium, Hotspots, and Whole Mantle Convection," La Jolla, California, Aug. 12-15, 2004.

Service

Reviewer for IEEE Signal Processing Letters, since 2005.

Reviewer for Geophysical Journal International, since 2006.

Elected member of Princeton Graduate Student Government, since 2003. Geosciences representative to the Assembly 2003–2004, Chair of the Health and Life Committee since 2004.

Graduate Student Member of the Council of the Princeton University Community (CPUC), since 2005. Member of the Executive Committee, the Rights and Rules Committee, and of the "Healthier Princeton" taskforce. The CPUC is the university's top-level standing committee charged with strategic planning and policy-making in matters of concern to the wider university community. It is chaired by the President of the university, and is composed of 50 representatives of the administration, faculty, students, staff, and alumni.

Coordinator of Solid Earth Seminar Series, Geosciences Dept., 2004–2005. Programmed, organized, and ran the public lecture series of the solid earth group at Princeton.

Coordinator of prospective students' visits, Geosciences Dept., 2004 and 2005.

Initiator and leader of the student organizer team for Graduate Student/Graduate Alumni Career Mixers in the natural sciences, 2006 and 2007. University-wide social networking events for current and former graduate students (150 attendees). First held in 2006 in cooperation with the Association of Princeton Graduate Alumni, these events are meant for informal exchange and information gathering about career options in and beyond academia.

Languages

German (native language), **English** fluent, **French** fluent.

Computer Skills

Programming languages: MATLAB, Fortran, C/C++, Java, LaTeX, Perl.
Systems: UNIX/Linux, MS Windows, Macintosh.
Applications: MS Office, Adobe Illustrator and Pagemaker, Generic Mapping Tools, GIS ArcView.