

Margaret Cheney

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Professional Preparation:

1982 Ph.D. in Mathematics, Indiana University; advisor: Roger G. Newton
1976 B.A. in Mathematics and Physics, Oberlin College, Oberlin, OH

Appointments:

1993 - present Professor of Mathematics, Rensselaer Polytechnic Institute
1988 - 93 Associate Professor at Rensselaer Polytechnic Institute
1984 - 88 Assistant Professor of Mathematics, Duke University
1982 - 84 Postdoc with J.B. Keller, Department of Mathematics, Stanford University

Sabbaticals and Visiting Positions:

2007-08 9 months in Sensors Directorate, Air Force Research Lab
Fall 2003 3 months at Program on Inverse Problems, Institute for Pure and Applied Mathematics
Spring 2002 4 months at Naval Air Warfare Center Weapons Division, China Lake, CA;
2 months at Mathematics Department, Stanford University
Fall 2001 Program on Inverse Problems, Mathematical Sciences Research Institute, Berkeley
2000 Lise Meitner Visiting Professor, Department of Electrosience, Lund University, Sweden
May 1999 Dept. of Mathematics, Mainz, Germany
October 1998 Center for Wave Phenomena, Colorado School of Mines, Golden, Colorado
May 1998 Rolf Nevanlinna Institute (applied math., with a focus on electromagnetics), Helsinki
Spring 1997 Program on High-Performance Computing, Institute for Mathematics and Its Applications
1994 - 95 Program on Waves and Scattering, Institute for Mathematics and Its Applications
1987 - 88 Associate, Courant Institute of Mathematical Sciences
June 1987 Division of Electromagnetic Theory, KTH, Stockholm
summers '85 - 87 Visiting Scientist, Ames Laboratory, Iowa
summers '76 - 80 Graduate Research Assistant, Los Alamos National Lab

Honors and Awards:

2008 lecturer for Conference Board of the Mathematical Sciences
2006-2008 Program Director, SIAM Activity Group on Imaging Science (elected)
2007 Plenary lecturer, Internat. Congress of Industrial & Applied Mathematics, Zurich
2007 National Research Council Research Associateship award, 2007.
2000 Lise Meitner Visiting Professor, Lund, Sweden
1999 Fellow, Institute of Physics
1996 - 2004 Board of Trustees, SIAM (elected)
1993 ComputerWorld Smithsonian award in medicine category,
given to Rensselaer for the work of our electrical impedance tomography group
1991 NSF Faculty Award for Women in Science and Engineering
1990 Member, Institute for Theory and Computation, Electromagnetics Academy
1986 ONR Young Investigator Award

Editorships:

2008 - present editorial board for IEEE Trans. Image Processing
2007 - present editorial board for SIAM Journal on Imaging Science
2006 - present editorial board for AIMS journal Inverse Problems and Imaging
2004 - 2007 member of AMS Editorial Boards Committee
1998 - present editorial board for Inverse Problems
1995 - 1997 Editor-in-chief for SIAM J. Appl. Math.

Selected Journal Articles (from about 100):

- "Imaging Moving Targets from Scattered Waves", M. Cheney and B. Borden, *Inverse Problems* 24 (2008) 035005.
- "Bistatic Synthetic Aperture Radar Imaging for Arbitrary Flight Trajectories", C.E. Yarman, B. Yazici, and M. Cheney, *IEEE Trans. Image Processing* 17 (2008) 84-93.
- "A variational approach to waveform design for synthetic aperture imaging", T. Varslot, C.E. Yarman, M. Cheney, B. Yazici, *Inverse Problems and Imaging*, 1 (2007) 577-592.
- "Wideband pulse-echo imaging with distributed apertures in multi-path environments", T. Varslot, B. Yazici, and M. Cheney, *Inverse Problems* 24 (2008) 045013
- "Enhanced angular resolution from multiply scattered waves", C.J. Nolan, M. Cheney, T. Dowling, and R. Gaburro, *Inverse Problems* 22 (2006) 1817-1834.
- "Synthetic Aperture Inversion for an Arbitrary Flight Trajectory in the Presence of Noise and Clutter", B. Yazici, M. Cheney, and C.E. Yarman, *Inverse Problems* 22 (2006) 1705-1729.
- "Synthetic-aperture imaging from high-Doppler-resolution measurements", B. Borden and M. Cheney, *Inverse Problems* 21 (2005) 1-11.
- "Synthetic-Aperture Assessment of a Dispersive Surface", M. Cheney, *Internat. J. Imaging Systems and Technology* 14 (2004) 28-34.
- "Synthetic-Aperture Imaging through a Dispersive Dielectric Layer", M. Cheney and C. J. Nolan, *Inverse Problems*, 20 (2004) 507-532.
- "A mathematical tutorial on Synthetic Aperture Radar, M. Cheney, *SIAM Review* 43 (2001) 301-312.
- "Synthetic Aperture Inversion for Arbitrary Flight Paths and Non-Flat Topography", C. Nolan and M. Cheney, *IEEE Transactions on Image Processing* 12 (Sept. 2003) 1035-1043.
- "Resolution for radar and X-ray tomography", F. Natterer, M. Cheney, and B. Borden, *Inverse Problems* 19 (2003) S55-S64.
- "Microlocal structure of inverse synthetic aperture radar data", M. Cheney and B. Borden, *Inverse Problems*, 19 (2003) 173-194.
- "Feature-enhancing inverse methods for limited-view tomographic imaging problems", E. Miller, M. Cheney, M. Kilmer, G. Boverman, D. Boas, *Subsurface Sensing, Technology and Applications* 4 (October 2003) 327-353.
- "Synthetic Aperture Inversion for Arbitrary Flight Paths and Non-Flat Topography", C. Nolan and M. Cheney, *IEEE Trans. Image Processing* 12 (Sept. 2003) 1035-1043.
- "Synthetic Aperture Inversion", C. Nolan and M. Cheney, *Inverse Problems* 18 (2002) 221-236.
- "The linear sampling method and the MUSIC algorithm", M. Cheney, *Inverse Problems* (2001) 591-595.
- "Optimal Electromagnetic Measurements", M. Cheney and G. Kristensson, *J. Electromagnetic Waves and Applications* 15 (2001) 1323-1336.
- "The linear sampling method and the MUSIC algorithm", M. Cheney, *Inverse Problems* (2001) 591-595.
- "Electrical Impedance Tomography", M. Cheney, D. Isaacson and J.C. Newell, *SIAM Review*, 40, 85-101 (1999).
- "Inverse electromagnetic scattering models for sea ice", K.M. Golden, D. Borup, M. Cheney, E. Cherkaeva, M.S. Dawson, K.H. Ding, A.K. Fung, D. Isaacson, S.A. Johnson, A.K. Jordan, J.A. Kong, R. Kwok, S.V. Nghiem, R.G. Onstott, J. Sylvester, D.P. Winebrenner, and I.H.H. Zabel, *IEEE Trans. Geoscience and Remote Sensing* 36, 1675-1704 (1998).
- "Forward Electromagnetic Scattering Models for Sea Ice", K.M. Golden, M. Cheney, K.H. Ding, A.K. Fung, T.C. Grenfell, D. Isaacson, J.A. Kong, S.V. Nghiem, J. Sylvester, and D.P. Winebrenner, *IEEE Trans. Geoscience and Remote Sensing* 36, 1655-1674 (1998).
- "Uniqueness for a wave propagation inverse problem in a half space", M. Lassas, M. Cheney, and G. Uhlmann, *Inverse Problems* 14, 679-684 (1998) .
- "Recovery of surface parameters from stepped-frequency radar returns", M. Cheney, D. Isaacson, V.I. Lytle, and S.F. Ackley, *Mathematics and Computers in Simulation* 50 (1999) 527-539.
- "Inverse Problems for a Perturbed Dissipative Half-Space", M. Cheney and D. Isaacson, *Inverse Problems*, 11, 865-888 (1995).