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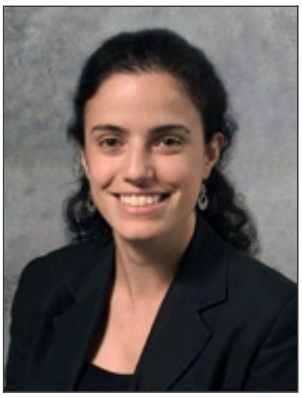
ELISA E. KONOFAGOU



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EDUCATION

- 1992: B.S., Chemical Physics, Universite de Paris 6, Paris France
- 1993: M.S., Biomedical Engineering, Imperial College, University of London, London, U.K.
- 1999: Ph.D., Elasticity Imaging, University of Houston and University of Texas Medical School, Houston, TX

PROFESSIONAL EXPERIENCE

- 1993-94: Biomedical Engineer, Onassis Cardiac Surgery Center, Athens, Greece
- 2003- : Assistant Professor, Columbia University, New York, NY

RESEARCH EXPERIENCE

- 1991: Research Assistant, Institut de Pierre et Marie Curie, University of Paris VI, Paris, France, Summer.
- 1992: Research Assistant, Department of Physics, Charles University, Prague, Czechia, Summer
- 1993-94: Research Assistant, National Center for Scientific Research (N.C.S.R.) Demokritos, Athens, Greece
- 1994-99: Research Assistant, University of Texas Medical School-Houston, Houston, TX
- 1999-2002: Research Fellow, Brigham and Women's Hospital, Harvard Medical School, Boston, MA
- 2002-3: Instructor, Brigham and Women's Hospital, Harvard Medical School, Boston, MA
- 2003- : Visiting Scientist, Brigham and Women's Hospital, Harvard Medical School, Boston, MA

PROFESSIONAL AFFILIATIONS

- Member of Eta Kappa Nu
- Research fellow of Sigma Xi
- IEEE Society for Ultrasonics, Ferroelectrics and Frequency Control
- IEEE in Engineering in Medicine and Biology
- Houston Society for Engineering in Medicine and Biology
- American Association for the Advancement of Science

HONORS AND AWARDS

- University of Texas Medical School-Houston, Graduate Fellowship, 1994-99
- Hellenic Professional Society of Texas Scholarship, October 1997
- Poster Award at the Sigma Xi competition-UH Chapter, April l997
- IEEE Travel Awards for participation to the 1996, 1998, and 1999 IEEE-UFFC Conferences
- Graduate Student Achievement Award, Sigma Xi Competition, UH chapter, April 1999
- RWB Stephens Student prize, World Conference in Ultrasound '99, Copenhagen, Denmark, June 1999
- Award for the Best Non-Clinical Paper Published in the journal *Ultrasound in Medicine and Biology* in 1998 from the World Federation of Ultrasound in Medicine and Biology (WFUMB), February 2000
- Honorable mention in Young Investigator Award Session of EuroEcho VI, Lisbon, Portugal, December 2000
- IEEE-UFFC Cover Page, May 2001
- Wallace H. Coulter Early Career Award, June 2005.
- New Investigator Award, American Institute of Ultrasound in Medicine (AIUM), Washington, DC, March 2006.
- Nagy Award by the National Institute of Biomedical Imaging and Bioengineering (NIBIB) - NIH, June 2007.
- Diversity Research Fellowship Award, Columbia University, January 2008

GRANT SUPPORT

- Seed Grant Radiological Society of North America Harmonic Motion Imaging: A Novel Method for the Assessment of Mechanical Properties of Tissues for the Detection of Stiff Nodules
- Scientist Development Grant
  American Heart Association a Novel Imaging Technique for the Assessment of Myocardial Contractility
- Wallace H. Coulter Early Career Development Award: An Elastocardiography Prototype Module for Echocardiography in the detection of heart disease
- National Institutes of Health: NIH R01 EB006042: Early Detection and Mapping of Ischemia using Myocardial Elastography
- National Institutes of Health: NIH R01 EB009041: Optimization of Ultrasound-Induced Blood-Brain Barrier Opening
- National Science Foundation: NSF CAREER 0644713 : Therapeutic Ultrasound and the Blood-Brain Barrier
- National Institutes of Health: NIH R21 EY018505: Ultrasound-induced Drug Delivery using Focused Ultrasound
- National Institutes of Health: NIH R21 EB008521: A Novel System For Simultaneous Generation And Monitoring Of Tumor Ablation

PUBLICATIONS

- Konofagou E.E., Dutta P., Ophir J., and Cespedes I., Reduction of Stress Nonuniformities by Apodization of Compressor Displacement in Elastography, *Ultrasound in Medicine and Biology* 22(9), 1229-1236, 1996.
- Konofagou E.E., Varghese T., and Ophir T., Variable Compressions with RF and Baseband Processing for Dynamic Range Expansion of Elastograms, *Journal of Medical Ultrasonics* (Japan) 24(5) 753-760, 1997. [Invited].
- Konofagou E.E., Ophir J., Kallel F., and Varghese, T., Elastographic Dynamic Range Expansion Using Variable Applied Strains, *Ultrasonic Imaging* 19, 145-166, 1997.
- Konofagou E.E. and Ophir J., A New Elastographic Method for Estimation and Imaging of Lateral Strains, Corrected Axial Strains and Poison's Ratios in Tissues, *Ultrasound in Medicine and Biology* 24(8), 1183-1199, 1998.
- Alam S.K., Ophir J., and Konofagou E.E., An Adaptive Stretching Estimator for Elastography, *IEEE Transactions of Ultrasonics, Ferroelectrics and Frequency Control* 45(2), 461-472, 1998.
- Ophir J., Alam S.K., Garra B., Kallel F., Konofagou E.E., Krouskop T., and Varghese T., Elastography: Ultrasonic Estimation and Imaging of Elastic Properties of Tissues, Invited paper, *Journal of Engineering in Medicine*, Proceedings of the Institute of Mechanical Engineers, 213, part H, 203-233, 1999. [Invited].
- Kallel F., Price R., Konofagou E.E. and Ophir J., Elastographic Imaging of the Dog Prostate In-Vitro, *Ultrasonic Imaging* 21(3), 201-215, 1999.
- Konofagou E.E., Harrigan T., Ophir J., and Krouskop T., Poroelastography: Estimation and Imaging of the Poroelastic Properties of Tissues, *IEEE Proceedings of the Symposium in Ultrasonics, Ferroelectrics and Frequency Control*, Lake Tahoe, NV, 1627-1630, 1999.
- Konofagou E.E., Harrigan T., and Ophir J., Shear Strain Estimation and Lesion Mobility Assessment in Elastography, *Ultrasonics* 38(1-8), 400-404, 2000.
- Konofagou E.E., Varghese T., and Ophir J., Spectral Estimators in Elastography, Ultrasonics 38(1-8), 412-416, 2000.
- Ophir J., Garra B., Kallel F., Konofagou E.E., Krouskop T., Righetti R., and Varghese T., Elastographic imaging, *Ultrasound in Medicine and Biology* 26 Suppl. 1, 23-29, 2000.
- Konofagou E.E. and Ophir J., Precision Estimation and Imaging of the Three-Dimensional Normal and Shear Strain Tensor Principal Components, Physics in Medicine and Biology 45(6), 1553-63, 2000 [Invited].
- Konofagou E.E., Varghese T. and Ophir J., A Fundamental Limit on the Estimation of Transverse Displacement, Transverse Strain and Poisson's Ratio in Elastography, Ultrasonic Imaging 22(3), 153-177, 2000.
- Ophir J., Kallel F., Varghese T., Konofagou E.E., Alam S.K., Garra B., Krouskop T., and Righetti R., Elastography, Optical and Acoustic Imaging of Acoustic Media, *C.R. Acad. Sci. Paris*, Tome 2, Serie IV, No. 8, 1193-1212, 2001. [Invited].
- Konofagou E.E., Thierman J., and Hynynen K., A New Focused Ultrasound Method for Dual Diagnostic and Therapeutic Applications – A Simulation Study, *Physics in Medicine and Biology* 46(11), 2667-1984, 2001.
- Konofagou E.E., Harrigan T., Ophir J., and Krouskop T., Poroelastography: Estimation and Imaging of the Poroelastic Properties of Tissues, *Ultrasound in Medicine and Biology* 27(10), 1387-1397, 2001.
- Varghese T., Konofagou E.E., Ophir, J., Kallel F., and Righetti, R., Fundamentals of Elastographic Imaging, *Ultrasound in Medicine and*

Biology 23, 216-248, 2002.

- Konofagou E.E., Thierman J., and Hynynen K., The Temperature Dependence of Ultrasound-Stimulated Acoustic Emission, *Ultrasound in Medicine and Biology* 28(3), 331-338, 2002.
- D'hooge J., Konofagou E.E., Jamal F., Heimdal A., Barrios L., Bijmens B., Thoen J., Van de Werf F., Sutherland G., and Suetens P., Two-dimensional Strain Rate Measurement of the Human Heart In Vivo, *IEEE Transactions in Ultrasonics, Ferroelectrics and Frequency Control* 49, 281-286, 2002.
- Konofagou E.E., D'hooge J. and Ophir J., Cardiac Elastography – An In Vivo Feasibility Study, *Ultrasound in Medicine and Biology* 28(4), 475-482, 2002.
- Ophir J., Alam S.K., Garra B., Kallel F., Konofagou E., Krouskop T., Merritt C.R.B., Righetti R., Souchon R., Srinivasan S., and Varghese T., Elastography: Imaging the Elastic Properties of Soft Tissues with Ultrasound, *Journal of the Japan Society of Ultrasonics in Medicine* 29, 155-171, 2002 [Invited].
- Konofagou E.E., Thierman J., and Hynynen K., The Use of USAE Frequency Shift in the Monitoring of Modulus Changes with Temperature, *Ultrasonics* 41(5), 337-45, 2003.
- Konofagou E.E. and Hynynen K., Localized Harmonic Motion Imaging: Theory, Simulations and Experiments, *Ultrasound in Medicine and Biology* 29, 1405-13, 2003.
- Harrigan T. and Konofagou E.E., Estimation of Material Elastic Moduli in Elastography: A Local Method, and an Investigation of Poisson Ratio Sensitivity, *Journal of Biomechanics* 37(8), 1215-1221, 2004.
- Konofagou E.E., Quo vadis Elasticity Imaging? *Ultrasonics* 42, 331-336, 2004 [Invited].
- Konofagou E.E., Ottensmeyer M., Dawson S.L. , and Hynynen K., Estimating Localized Oscillatory Tissue Motion for Assessment of the Underlying Mechanical Modulus, *Ultrasonics* 42, 951-956, 2004.
- Konofagou E.E. and Langevin H.M. Using Ultrasound To Understand Acupuncture, IEEE Engineering in Medicine and Biology Magazine 24(2), 41-46, 2005 [Invited].
- Spalazzi J.P., Gallina J., Fung-kee-Fung S., Konofagou E.E. and Lu H.H., Elastographic Imaging of Strain Distribution in the Anterior Cruciate Ligament and at the Ligament-Bone Insertions, Journal of Orthopedics Research 24(10):2001-10, 2006.
- Morda L.S., Lim W.-K. and Konofagou E.E., Left-Ventricular Segmentation Using Autocovariance Techniques, *Ultrasonic Imaging 28(3)*, 159-78, 2006.
- Maleke, C., Pernot, M. and Konofagou E.E., A Single-Element Focused Transducer Method for Harmonic Motion Imaging,*Ultrasonic Imaging 28(3)*, 144-58, 2006 [Invited].
- Choi J.J., Pernot M., Small S., and Konofagou E.E., Non-invasive, Transcranial, and Localized Opening of the Blood-Brain Barrier in Mice using Focused Ultrasound – A Feasibility Study, *Ultrasound in Med. Biol. 33*: 95-104, 2007.
- Zervantonakis I. K., Fung-Kee-Fung S. D., Lee W.-N. and Konofagou E.E., A Novel View-Independent Method for Strain Estimation in Myocardial Elastography - Eliminating Angle- and Centroid-Dependence, *Phys. Med. Biol*. 52, 4063-4080, 2007.
- Pernot M., Fujikura K., Fung-Kee-Fung S. and Konofagou E.E., ECG-synchronized, ultrafast ultrasound imaging of cardiovascular tissues in intact mice, *Ultras. Med. Biol.* 33(7):1075-85, 2007.
- Luo J., Fujikura K., Homma S. and Konofagou E.E., Myocardial Elastography at both High Temporal and Spatial Resolution for the

Detection of Murine Infarcts, Ultras. Med. Biol., Vol. 33, No. 8, pp. 1206–1223, 2007.

- Langevin H.M., Rizzo D.M., Fox J.R., Stevens-Tuttle D., Konofagou E.E., Bouffard N.A., Badger G.J., and Krag M.H., Dynamic morphometric characterization of local connective tissue network structure in humans using ultrasound, BMC Systems Biology 5;1:25. 2007.
- Choi J.J., Pernot M., Brown T.R., Small S., and Konofagou E.E., A Spatio-temporal analysis of molecular delivery through the blood-brain barrier using focused ultrasound, Phys. Med. Biol. 52: 5509-5530, 2007.
- Lee W.N., Ingrassia C., Fung-kee-Fung, S., Costa K.D. Holmes, J.W. and Konofagou E.E. A Theoretical Framework for Quality Assessment in Myocardial Elastography, *IEEE Trans. Ultras. Ferroel. Freq. Control.*, Vol. 54, No.11, 2233-2245, 2007.
- Fujikura K., Luo J., Gamarnik V., Pernot M., Fukumoto R., Homma S., Tilson III M.D. and Konofagou E.E., A Novel Non-Invasive Technique for Pulse-wave Imaging and Characterization of Vascular Mechanical Properties In-Vivo, *Ultrasonic Imaging* 29, 137-154, 2007.
- Luo J. and Konofagou E.E., High Frame-Rate, Full-View Myocardial Elastography With Automated Contour Tracking In Vivo, *IEEE Trans. Ultras. Ferroel. Freq. Control.*, Vol. 55, No. 1, 240-248, 2008.
- Maleke C. and Konofagou E. E., An All-Ultrasound-Based System for Real-Time Monitoring and Sonication of Temperature Change and Ablation, *Phys. Med. Biol.*, Vol. 53, No. 6, 1773-1793, 2008.
- Katouzian A., Baseri B., Konofagou E.E., and Carlier S.G., Challenges in Atherosclerotic Plaque Characterization with Intravascular Ultrasound (IVUS): From Data Collection to Classification, *IEEE Information Technology in Biomedicine*, Vol. 12, No. 3, 315-327, 2008.
- Shan B, Pelegri AA, Maleke C, Konofagou EE. A mechanical model to compute elastic modulus of tissues for harmonic motion imaging. *J Biomech.* 41(10):2150-2158, 2008.
- Lee W-N. and Konofagou E.E., Angle-Independent and Multi-Dimensional Myocardial Elastography: From Theory to Clinical Validation, *Ultrasonics*,48(6-7):563-7, 2008 [Invited].
- Wang S., Lee W-N, Provost J, Luo J. and Konofagou E.E., Composite Elasticity Imaging for the Detection of Cardiovascular Disease, *IEEE Trans. Ultras. Ferroel. Freq. Control.*, 55: 2221-2233, 2008.
- Lee W.N., Qian Z., Tosti C.L., Brown, T.R., Metaxas D.N. and Konofagou E.E. Validation of Angle-Independent Myocardial Elastography Using MR Tagging in Human Subjects In Vivo, *Ultras. Med. Biol.* 34(12):1980-97, 2008.
- Choi J.J., Wang S., Brown T.R., Small S.A., Duff K.E. and Konofagou E.E., Noninvasive and Transient Blood-Brain Barrier Opening in the Hippocampus of Alzheimer's Double Transgenic Mice Using Pulsed Focused Ultrasound, *Ultrasonic Imaging,* 189-200, 2008.
- Luo J., Fujikura K., Tyrie L., Tilson III M.D. and Konofagou E.E., Pulse Wave Imaging of Normal and Aneurysmal Abdominal Aortas In Vivo, *IEEE Trans. Med. Imag.*, 2009 (in press).

Ultrasonics (imaging and therapy), elasticity imaging, signal and image processing, soft tissue mechanics.