

Peter J. Lu

陸述義

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Personal Born 1978 (Ohio, USA); dual citizenship in the United States of America and in Canada
Education A.B. *summa cum laude* (2000), Physics, Princeton University; GPA: 4.13 (departmental), 4.04 (overall)
A.M. (2002) and Ph.D. (2008), Physics, Harvard University (advisor: Prof. David A. Weitz)

Publications

Refereed Journal Articles

[ordered first by descending journal impact factor, then reverse-chronologically]

27. Peter J. Lu, Emanuela Zaccarelli, Fabio Ciulla, Andrew B. Schofield, Francesco Sciortino and David A. Weitz, "Gelation of particles with short-range attraction," *Nature* **453**, 499-503 (2008).
26. Luca Bindi, Paul J. Steinhardt, Nan Yao and Peter J. Lu, "Natural Quasicrystals," *Science* **324**, 1306-1309 (2009).
25. Peter J. Lu and Paul J. Steinhardt, "Decagonal and Quasi-Crystalline Tilings in Medieval Islamic Architecture," *Science* **315**, 1106-1110 (2007).
24. Peter J. Lu, "Early Precision Compound Machine from Ancient China," *Science* **304**, 1638 (2004).
*discovery highlighted in: "Archaeology: Eastern Hemisphere," *Encyclopædia Britannica, 2005 Book of the Year*, p. 150.
23. Peter J. Lu (陸述義) and David A. Weitz, "Colloidal Particles: Crystals, Glasses, and Gels," *Annu. Rev. Condens. Matter Phys.* **4**, 9.1-9.17 (2013).
22. Peter J. Lu, Weitao Pan and Maitland Jones, Jr., "Benzocyclohex-1-en-3-yne at High Temperature," *J. Am. Chem. Soc.* **120**, 8315-8318 (1998).
21. Peter J. Lu, Motohiro Yogo and Charles R. Marshall, "Phanerozoic Marine Biodiversity Dynamics in light of the Incompleteness of the Fossil Record," *Proc. Nat. Acad. Sci. USA* **103**, 2736-2739 (2006).
20. Peter J. Lu (陸述義), Fabio Giavazzi, Thomas E. Angelini, Emanuela Zaccarelli, Frank Jargstorff, Andrew B. Schofield, James N. Wilking, Mark B. Romanowsky, David A. Weitz, and Roberto Cerbino, "Characterizing concentrated, multiply scattering, and actively driven fluorescent systems with confocal differential dynamic microscopy," *Phys. Rev. Lett.* **108**, 218103 (2012).
19. Lei Xu (徐磊), Alexis Bergès, Peter J. Lu (陸述義), André R. Studart, Andrew B. Schofield, Hidekazu Oki (沖秀一), Simon Davies, and David A. Weitz, "Drying of Complex Suspensions," *Phys. Rev. Lett.* **104**, 128303 (2010).
18. Peter J. Lu, Jacinta C. Conrad, Hans M. Wyss, Andrew B. Schofield and David A. Weitz, "Fluids of Clusters in Attractive Colloids," *Phys. Rev. Lett.* **96**, 028306 (2006).
17. Peter J. Lu, Kenneth Deffeyes, Paul J. Steinhardt and Nan Yao, "Identifying and Indexing Icosahedral Quasicrystals from Powder Diffraction Patterns," *Phys. Rev. Lett.* **87**, 275507 (2001).
16. Peter J. Lu, Maor Shutman, Eli Sloutskin, and Alexander V. Butenko, "Locating particles accurately in microscope images requires image-processing kernels to be rotationally symmetric," *Optics Express* **21**, 30755-30763 (2013).
15. Peng Fei, Zhilong Yu, Xu Wang, Peter J. Lu, Yusi Fu, Zi He, Jingwei Xiong and Yanyi Huang, "High dynamic range optical projection tomography (HDR-OPT)," *Optics Express* **20**, 8824-8836 (2012).
14. Peter J. Lu, Peter A. Sims, Hidekazu Oki, James B. Macarthur and David A. Weitz, "Target-locking Acquisition with Real-time Confocal (TARC) Microscopy," *Optics Express* **15**, 8702-8712 (2007).
13. Melanie M. Hoehl, Peter J. Lu, Peter A. Sims, and Alexander H. Slocum, "Rapid and Robust Detection Methods for Poison and Microbial Contamination," *J. Agric. Food Chem.* **60**, 6349-6358 (2012).
12. Emanuela Zaccarelli, Peter J. Lu, Fabio Ciulla, David A. Weitz and Francesco Sciortino, "Gelation as arrested phase separation in short-ranged attractive colloid-polymer mixtures," *J. Phys.: Condens. Matter* **20**, 494242 (2008).
11. Toshimitsu Kanai, Niels Boon, Peter J. Lu (陸述義), Eli Sloutskin, Andrew B. Schofield, Frank Smalenburg, René van Roij, Marjolein Dijkstra, and David A. Weitz, "Crystallization and reentrant melting of charged colloids in nonpolar solvents," *Phys. Rev. E* **01**, 030301(R) (2015).
10. Biagio Nigro, Claudio Grimaldi, Peter Ryser, Francesco Varrato, Giuseppe Foffi and Peter J. Lu (陸述義), "Enhanced tunneling conductivity induced by gelation of attractive colloids," *Phys. Rev. E* **87**, 062312 (2013).
9. Luca Bindi, Paul J. Steinhardt, Nan Yao and Peter J. Lu, "Icosahedrite, Al₆₃Cu₂₄Fe₁₃, the first natural quasicrystal," *American Mineralogist* **96**, 928-931 (2011).
8. Peter J. Lu, Nan Yao, Jenny F. So, George E. Harlow, Jianfang Lu, Genfu Wang and Paul M. Chaikin, "Earliest Use of Corundum and Diamond in Prehistoric China," *Archaeometry* **47**, 1-12 (2005).
7. A. S. Risbud, K. B. Helean, M. C. Wilding, P. Lu and A. Navrotsky, "Enthalpies of formation of lanthanide oxyapatite phases," *J. Mater. Res.* **16**, 2780- 2783 (2001).
6. Juan-Jose Lieten Santos, Chanjoon Kim, Peter J. Lu, Alberto Fernandez-Nieves and David A. Weitz, "Gravitational Compression of Colloidal Gels," *Eur. Phys. J. E* DOI 10.1140/epje/i2008-10390-7 (2009).
5. Peter J. Lu (陸述義), Melanie M. Hoehl, James B. Macarthur, Peter A. Sims, Hongshen Ma, and Alexander H. Slocum, "Robust and economical multi-sample, multi-wavelength UV/vis absorption and fluorescence detector

for biological and chemical contamination,” *AIP Advances* **2**, 032110 (2012).

4. Peter J. Lu, Hidekazu Oki, Catherine A. Frey, Gregory E. Chamitoff, Leroy Chiao, Edward M. Fincke, C. Michael Foale, Sandra H. Magnus, William S. McArthur Jr., Daniel M. Tani, Peggy A. Whitson, Jeffrey N. Williams, William V. Meyer, Ronald J. Sicker, Brion J. Au, Mark Christiansen, Andrew B. Schofield and David A. Weitz, “Orders-of-magnitude performance increases in GPU-accelerated correlation of images from the International Space Station,” *J. Real-Time Image Proc.* **5**, 179-193 (2010).

Selected Invited Publications

3. Peter J. Lu, “The blossoming of Japanese mathematics,” *Nature* **454**, 1050 (2008).
2. Peter J. Lu and Paul J. Steinhardt, “Further Notes on Quasi-Crystal Tilings,” *Science* **316**, 981 (2007).
1. Peter J. Lu, “Confocal Scanning Optical Microscopy and Nanotechnology,” in *Handbook of Microscopy for Nanotechnology*, N. Yao and Z. L. Wang eds., New York: Kluwer, pp. 3-24 (2005); and Beijing: Tsinghua University Press, pp. 1-23 (2006).

Patents

2. Melanie M. Hoehl, Peter J. Lu, and Alexander H. Slocum, “Apparatus and Method for detecting Glycol,” *United States Patent No. US 8,867,037 B2* (granted 2014; licensed by Robert Bosch GmbH, Stuttgart, Germany).
1. Peter J. Lu, “Target-locking Acquisition with Real-Time Confocal (TARC) Microscopy,” *U.S. Patent No. 2010/0195868* (pending).

General-Audience Media Coverage

Radio broadcasts

- “Islamic art,” *The World Today*, BBC World Service, 24 Feb 2007, 0700 and 0800 GMT (UK).
*accompanying web story was the overall most-emailed story for 60 hours at the <http://news.bbc.co.uk> website.
- “Medieval Mosques Illuminated by Math,” *All Things Considered*, National Public Radio, 22 Feb 2007, 5 PM EST (USA).
- “Advanced Stone-Polishing Techniques Employed Earlier Than Thought,” *All Things Considered*, National Public Radio, 7 Mar 2005, 5 PM EST (USA).

Newspaper articles

[► denotes front-page coverage]

- “Rock Stars,” *Sydney Morning Herald*, 2 Dec 2010, p. 21 (Australia).
- “Ecco il quasicristallo che nasce in natura,” *Corriere della Sera*, 6 Jun 2009, p. 28 (Italy).
- “Lo que vio Mrs. Penrose,” *Revista de Agosto, El Pais*, 7 Aug 2007, p. 19 (Spain).
- “L’art des mosquées devance les maths,” *El Watan*, 8-9 Jun 2007, p. 19 (Algeria).
- “Эътирофни беш аср кутган ихтиро,” *Халк сўзи*, 29 March 2007, p. 1 (Uzbekistan).
- “Мозаика Пенроуза,” *Правда Востока*, 24 March 2007, p. 1 (Uzbekistan).
- “Mathematik und Kunst beim Plattenlegen,” *Neue Zürcher Zeitung am Sonntag*, 18 Mar 2007, p. 76 (Switzerland).
- “Matematiker fann koden till islamska mönster,” *Dagens Nyheter*, 4 Mar 2007, p. 18 (Sweden).
- “The maths is on the wall,” *The Canberra Times*, 4 Mar 2007, p. 6 (Australia).
- “Kvazikristalna geometrija. Tajne srednjovjekovne islamske umjetnosti,” *Feral Tribune*, 2 Mar 2007, p. 39 (Croatia).
- “Muster ohne Wiederholung,” *Die Zeit*, 1 Mar 2007, p. 38 (Germany).
- “Medieval Islamic Architecture Predates Western Mastery,” *Iran Daily*, 28 Feb 2007, p. 12 (Iran).
- “Modern math in medieval tiles,” *International Herald Tribune*, 28 Feb 2007, p. 4 (France).
- “In Medieval Architecture, Signs of Advanced Math,” *The New York Times*, 27 Feb 2007, p. F2 (USA).
- “Symetria zagubiona na pół tysiąca lat,” *Gazeta Wyborcza*, 27 Feb 2007, p. 24 (Poland).
- “Science Imitates Art?” *The Boston Globe*, 26 Feb 2007, p. C1 (USA).
- “Patterns of Islamic genius crystal clear centuries ago,” *Sydney Morning Herald*, 26 Feb 2007, p. 5 (Australia).
- “Matemática muito ‘à frente’ explica mosaicos islâmicos,” *Diário de Notícias*, 26 Feb 2007 (Portugal).
- “Islamische Ornamente,” *Neue Zürcher Zeitung am Sonntag*, 25 Feb 2007, p. 74 (Switzerland).
- “Medieval Islamic artists made amazing maths breakthrough,” *Gulf News*, 24 Feb 2007, p. 1 (United Arab Emirates).
- “Medieval Muslims made stunning math breakthrough,” *Today’s Zaman*, 24 Feb 2007, p. 11 (Turkey).
- “Early Muslims made amazing math inventions,” *The Brunei Times*, 24 Feb 2007, p. 1 (Brunei).
- “Medieval Muslims made stunning maths breakthrough,” *The Times of India* [New Delhi], 24 Feb 2007, p. 19 (India).
- “Medieval Muslims made stunning breakthrough,” *Bahrain Tribune*, 24 Feb 2007, p. 11 (Bahrain).
- “Old Tiles reflect Muslim’s maths mastery,” *Straits Times*, 24 Feb 2007, p. 25 (Singapore).
- “Designs from Islamic artists streets ahead of West,” *New Zealand Herald*, 24 Feb 2007, p. B10 (New Zealand).
- “Los mosaicos árabes, geometría de avanzada” *La Nacion*, 24 Feb 2007, p. 20 (Argentina).
- “New Light on ancient patterns,” *Chicago Tribune*, 23 Feb 2007, p. 12 (USA).
- “Amazing maths of the mosaic makers,” *The Times*, 23 Feb 2007, p. 29 (Britain).
- “Islamic tilers may have led scientific field,” *The Daily Telegraph*, 23 Feb 2007, p. 17 (Britain).
- “Islamic artists were 500 years ahead of Western scientists,” *The Independent*, 23 Feb 2007, p. 24 (Britain).
- “Medieval math feat,” *The Telegraph of India*, 23 Feb 2007 (India).
- “Muslim Tiles Patterns Show Math Prowess,” *The Washington Post*, 23 Feb 2007, p. A10 (USA).
- “Modern mathematicians are 500 years behind,” *The Globe and Mail*, 23 Feb 2007, p. A18 (Canada).
- “The art of repetition,” *National Post*, 23 Feb 2007, p. A16 (Canada).

- “El arte de las matemáticas,” *ABC*, 23 Feb 2007, p. 79 (Spain).
- “이슬람 문양 규칙성 찾았다… “4, 5개 단위로 묶으면 패턴” ,” *DongA*, 23 Feb 2007 (South Korea).
- “Geometrische Schönheiten,” *Berliner Zeitung*, 23 Feb 2007, p. 13 (Germany).
- “Premier diamantaires,” *Le Point*, 16 June 2005 (France).
- “Diamant und Korund in Chinas Jungsteinzeit,” *Neue Zürcher Zeitung am Sonntag*, 1 Jun 2005, p. 59 (Switzerland).
- “Il y a 6 000 ans, les Chinois polissaient au diamant,” *Le Figaro*, 24 May 2005, p. 11 (France).
- “Chinese First to Use Diamond,” *Iran Daily*, 21 May 2005, p. 12 (Iran).
- “The high tech of prehistory,” *The Christian Science Monitor*, 3 Mar 2005, p. 16 (USA).
- “Earliest known use of diamond, sapphire by prehistoric Chinese found,” *New Light of Myanmar*, 20 Feb 2005, p. 12 (Burma).
- ▶ “Earliest use of diamonds by prehistoric Chinese found,” *中國日報 [China Daily]*, 18 Feb 2005, p. 1 (China).

Magazine articles

- “Medieval Mosaics Reveal Advanced Mathematics,” *Solo Mosaico*, 2012, p. 40 (Russia).
- ▶ “The Tiles of Infinity,” *Saudi Aramco World*, Sep/Oct 2009, p. 24 (USA).
- “Высшая математика ислама,” *Gallery*, Apr 2007, p. 100 (Ukraine).
- “Islam Got It First,” *Newsweek [Intl Ed.]*, 19 Mar 2007, p. 42 (USA).

Selected Science-Focused Media Coverage

Television broadcast

- “Tuiles de l’Islam,” *Découverte*, Canadian Broadcasting Company, 23 Sep 2007, 1830 EDT (Canada).

Radio broadcasts

- “Quasikristalle in orientalischen Ornamenten,” *Forschung Aktuell*, Deutschlandfunk, 26 Feb 2007, 1630 GMT (Germany).
- “Chinese Stone Axes,” *Quirks and Quarks*, CBC/Radio-Canada, 9 Apr 2005, 12 PM EDT (Canada).

Magazine articles

- “A beautiful prize,” *Nature Materials*, December 2011, p. 897 (2011).
- “Natural quasicrystal found in a museum specimen,” *Physics Today*, August 2009, p. 14 (2009).
- “Mauren mauerten symmetrisch,” *Geo*, Oct 2008 (Germany).
- “The End of an Intellectual Dark Age?,” *Science*, 23 May 2008, p. 1004 (USA).
- “The Top 100 Science Stories of 2007: 59. Math Breakthrough Spotted on Mosques,” *Discover*, Jan 2008, p. 53 (USA).
- “Islamitske kunst var ren matematik,” *Illustreret Videnskab*, Oct 2007, p. 20 (Denmark; Sweden; Norway).
- “Matematiikkaa moskeijan seinässä,” *Tieteen Kuvalehti*, Oct 2007, p. 20 (Finland).
- “Islamitske kunst: pure wiskunde,” *Wetenschap in Beeld*, 1/2007, p. 20 (The Netherlands).
- “Moderne Mathematik in islamischen Ornamentem,” *Spektrum der Wissenschaft*, Sep 2007, p. 14 (Germany).
- “Zakazana Symetria Patelni,” *Focus Historia*, 3/2007, p. 18 (Poland).
- “中世イスラムの準結晶,” *日経サイエンス [Scientific American, Japanese edition]*, Jul 2007, p. 16 (Japan).
- “Intuition: Die Macht des Unbewussten,” *Süddeutsche Zeitung Wissen*, May/June 2007, p. 47 (Germany).
- “Cinq siècles d’avance!,” *Pour La Science*, May 2007, p. 96 (France).
- “Medieval Quasicrystals,” *Scientific American*, May 2007, p. 36 (USA).
- “Quasikristalline islamische Muster,” *Spektrum der Wissenschaft*, May 2007, p. 10 (Germany).
- “Los secretos matemáticos de los edificios islámicos,” *Clio*, Apr 2007 (Spain).
- “Islamic tilers got it long before Penrose,” *New Scientist*, 3 Mar 2007, p. 18 (UK).
- “Revised Numbers Quicken the Pace of Rebound from Mass Extinctions,” *Science*, 17 Feb 2006, p. 931 (USA).
- “Kivikauden kirveitä kiillotettiin jalokivillä,” *Tieteen Kuvalehti*, 12 May 2005, p. 22 (Finland).
- “Des haches polies au diamant,” *Pour La Science*, Apr 2005, p. 15 (France).
- “Steinzeitliche Diamantschleifer,” *Spektrum der Wissenschaft*, Apr 2005, p. 14 (Germany).
- “Premiers outils durs,” *Le Recherche*, Apr 2005, p. 19 (France).
- ▶ “In the Buff: Stone Age tools may have derived luster from diamond,” *Science News*, 19 Feb 2005, p. 116 (USA).
- “2500 Jahre alte Maschine aus China,” *Abenteuer Archäologie*, 3/2004, p. 8 (Germany).
- “古代中国の進んだ工作機械,” *日経サイエンス [Scientific American, Japanese edition]*, Oct 2004, p. 17 (Japan).
- “First Compound Machine Found in China,” *Popular Mechanics*, Sep 2004, p. 18 (USA).
- “Spirales Chinoises,” *La Recherche*, Sep 2004, p. 21 (France).
- “Tilsimli Yüzük,” *Atlas Geographic*, Sep 2004, p. 37 (Turkey).
- “不「成器」，怎琢玉,” 本文出自科學人 *[Scientific American, Chinese edition]*, Sep 2004, p. 21 (Taiwan).
- “Machine Made,” *Scientific American*, Aug. 2004, p. 29 (USA).

Invited Lectures

171. Universite Sidi Mohamed Ben Abdellah, Fes, Morocco; 28 Apr 2017.
170. *Public Lecture*, Dorsky Gallery Curatorial Programs, New York City, NY; 19 Feb 2017.
169. *Public Lecture*, Department of Art History, Tufts University, Medford, MA; 7 Feb 2017.
- 167, 168. *Colloquia*, Depts. of Physics and of CBE; College of Arts and Arch., Montana State University, Bozeman, MT; 29, 30 Sep 2016.
166. *Colloquium*, Department of Physics, University of Manitoba, Winnipeg, MB, Canada; 18 May 2016.

165. *Public Lecture*, Astronomy and Science in the Great Age of the Seljuqs, Metropolitan Museum of Art, New York, NY; 15 May 2016.
164. Department of Mathematics, American University of Cairo, Cairo, Egypt; 17 Apr 2016.
163. *Colloquium*, Leibniz Institute for New Materials, Saarbrücken, Germany; 13 Apr 2016.
162. *Colloquium*, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany; 11 Apr 2016.
161. Condensed-matter seminar, Tufts University, Medford, MA; 6 Apr 2016.
- 159, 160. *Colloquium* and $\pi\mu\epsilon$ induction ceremony, Department of Mathematics, Siena College, Albany, NY; 14 Mar 2016.
158. *Distinguished Lecture*, Pacific Institute for the Mathematical Sciences & MEICON, Univ. Victoria, Victoria, BC, Canada; 11 Jan 2016.
157. Joint Mathematics Meeting (American Mathematical Society and Mathematical Association of America), Seattle, WA; 9 Jan 2016.
156. Inst. of Electronic Structure & Lasers (IESL), Foundation for Research & Technology–Hellas (FORTH), Heraklion, Crete; 5 Jun 2015.
155. Department of Physics, National and Kapodistrian University of Athens, Athens, Greece; 3 Jun 2015.
154. Cultural Encounters in Anatolia in the Middle Age II: The Ilkhanids in Anatolia, VEKAM, Ankara, Turkey; 21 May 2015.
153. 30th Annual Meeting of the American Society for Gravitational and Space Research, Pasadena, CA; 26 Oct 2014.
152. *Keynote Lecture*, Fall Enrichment Program, King Abdullah University of Sci. and Tech. (KAUST), Jeddah, Saudi Arabia; 21 Oct 2014.
151. Symposium: Intention and Improvisation, School of Architecture, University of Virginia, Charlottesville, VA; 19 Apr 2014.
150. *Colloquium*, Materials Science and Engineering, Dept of Appl. Physics and Appl. Math, Columbia Univ., New York, NY; 4 Apr 2014.
149. Architectural Ceramics in the 21st century, Department of Architecture, MIT, Cambridge, MA; 22 Mar 2014.
148. Department of Architecture, School of Design, University of Pennsylvania, Philadelphia, PA; 4 Feb 2014.
147. Laboratoire de Physique des Solides, University of Paris-Sud, Orsay, France; 24 Jan 2014.
146. Matériaux Ingénierie et Science, Institut National Supérieurs de Sciences Appliquées (INSA), Univ. Lyon, Lyon, France; 22 Jan 2014.
145. Opening Ceremony, International Year of Crystallography, UNESCO, Paris, France; 21 Jan 2014.
144. *Colloquium*, Department of Physics, University of California at Irvine, Irvine, CA; 21 Nov 2013.
143. 29th Amer. Soc. for Gravitational & Space Research and 5th Intl. Symposium for Physical Sciences in Space, Orlando, FL; 4 Nov 2013.
142. *Plenary Lecture*, Complex Nonlinear Systems conference, Samarkand, Uzbekistan; 7 Oct 2013.
141. Research Center for Anatolian Civilizations (RCAC), Koç University, Istanbul, Turkey; 4 Oct 2013.
140. *Colloquium*, Department of Physics, Brandeis University, Waltham, MA; 2 Oct 2013.
- 137-139. Experimental Colloid Physics: Imaging and Analysis workshop, NASA Glenn Research Center, Cleveland, OH; 17-20 Jun 2013.
136. *Colloquium*, Physics Division, Argonne National Laboratory, Argonne, IL; 24 May 2013.
135. Lyric Semiconductor / Analog Devices, Cambridge, MA; 19 Feb 2013.
134. Department of Art History, University of Massachusetts at Dartmouth, North Dartmouth, MA; 7 Dec 2012.
133. HPC and GPU Supercomputing Meetup, Cambridge, MA; 25 Sep 2012.
132. Department of Chemistry, Colorado State University, Fort Collins, CO; 28 Jun 2012.
131. 1st Annual International Space Station Research and Development Conference, Denver, CO; 27 Jun 2012.
130. NVIDIA GPU Technology Conference, San Jose, CA; 17 May 2012.
- 128, 129. *Colloquium* and Seminar, Department of Physics, New York University, New York, NY; 25-26 Apr 2012.
127. Turkish Cultural Center Boston, Boston, MA; 21 Apr 2012.
126. *Colloquium*, Department of Physics, Ohio University, Athens, OH; 30 Mar 2012.
125. Procter and Gamble Corporate Research, Beckett Ridge Technical Center, West Chester, OH; 29 Mar 2012.
124. Debye Institute, Utrecht University, Utrecht, The Netherlands; 12 Jan 2012.
123. Time-resolved correlation spectroscopy workshop, European Space Research & Tech. Center, Noordwijk, Netherlands; 11 Jan 2012.
122. NVIDIA GPU Technology Conference Asia, Beijing, China; 15 Dec 2011.
121. Schlumberger–Doll Research, Cambridge, MA; 6 Dec 2011.
120. *Colloquium*, Department of Mathematics and Statistics, Swarthmore College, Swarthmore, PA; 27 Sep 2011.
119. Institut für Festkörperforschung, Forschungszentrum Jülich, Jülich, Germany; 15 Jul 2011.
118. *Plenary lecture*, 4th International Symposium on Physical Sciences in Space, Bonn / Bad Godesberg, Germany; 12 Jul 2011.
117. *Colloquium*, Department of Physics, University of Virginia, Charlottesville, VA; 18 Feb 2011.
116. Department of Physics, University of Florida, Gainesville, FL; 7 Jan 2011.
115. 49th AIAA Aerospace Sciences Meeting, Orlando, FL; 6 Jan 2011.
114. Polymères Colloïdes Interfaces, Université du Maine, Le Mans, France; 29 Nov 2010.
113. 1st International Workshop on Colloidal Experiments on board the International Space Station, Paris, France; 27 Nov 2010.
112. Opening seminar, 9th Dutch Soft Matter Meeting, Leiden, The Netherlands; 26 Nov 2010.
111. Department of Physics, The Chinese University of Hong Kong, Hong Kong; 5 Nov 2010.
- 107-110. *Colloquium* and seminars, Department of Physics, Fudan University, Shanghai, China; 1-4 Nov 2010.
106. Department of Textile Engineering, School of Textiles and Clothing, Jiangnan University, Wuxi, Jiangsu, China; 29 Oct 2010.
105. Department of Chemistry and Molecular Engineering, Tsinghua University, Beijing, China; 27 Oct 2010.
104. Inaugural seminar, BIOPIC, School of Life Sciences, Peking University, Beijing, China; 25 Oct 2010.
103. Department of Archaeology, Sichuan University, Chengdu, Sichuan, China; 21 Oct 2010.
- 101-102. College of Chemical Engineering, Sichuan University, Chengdu, Sichuan, China; 21 Oct 2010.
100. Department of Chemical Engineering, University of Michigan, Ann Arbor, MI; 5 Oct 2010.

99. Henry Ford Community College, Dearborn, MI; 4 Oct 2010.
98. Detroit Institute of Arts, Detroit, MI; 3 Oct 2010.
97. Islamic Center of Detroit, Detroit, MI; 2 Oct 2010.
96. NVIDIA GPU Technology Conference, San Jose, CA; 22 Sep 2010.
95. Department of Physics, Boston University, Boston, MA; 17 Sep 2010.
94. Department of Materials Science, University of Illinois Urbana/Champaign, IL; 24 May 2010.
93. Center de Recherche et de Restauration des Musées de France, Palais du Louvre, Paris, France; 7 May 2010.
92. General Motors Advanced Technical Center–Israel, Herzliya Pituach, Israel; 4 May 2010.
91. Department of Materials Engineering, Technion–Israel Institute of Technology, Haifa, Israel; 29 Apr 2010.
90. Department of Materials and Interfaces, Weizmann Institute of Science, Rehovot, Israel; 28 Apr 2010.
- 88, 89. *Colloquium* and seminar, Department of Physics, Bar-Ilan University, Ramat Gan, Israel; 26-27 Apr 2010.
87. Iznik Tile Foundation, Beşiktaş, Istanbul, Turkey; 23 Apr 2010.
86. Materials Research Science and Engineering Center (MRSEC), Northwestern University, Evanston, IL; 21 Jan 2010.
85. Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, CA; 12 Jan 2010.
84. 48th AIAA Aerospace Sciences Meeting, Orlando, FL; 6 Jan 2010.
83. SciGPU seminar, Initiative in Innovative Computing, Harvard University, Cambridge, MA; 30 Nov 2009.
82. NVIDIA GPU Technology Conference, San Jose, CA; 1 Oct 2009.
81. Environment Perception Group, Research and Advanced Engineering, Daimler AG, Sindelfingen, Germany; 27 Aug 2009.
80. Leica Microsystems CMS GmbH, Mannheim, Germany; 26 Aug 2009.
- 76-79. Complex Fluids summer school, Universidad Autonoma de San Luis Potosi, San Luis Potosi, Mexico; 17-21 Aug 2009.
75. NNIN/C workshop: Programming the GPU, Center for Nanoscale Systems, Harvard University, Cambridge MA; 14 Aug 2009.
74. Biomedical Optics Lecture Series, Harvard-MIT Health Sci. & Tech., Massachusetts General Hospital, Boston, MA; 1 Jul 2009.
73. Nanoscience seminar, Institute for Physics, Göteborgs Universitet, Göteborgs, Sweden; 15 Jun 2009.
72. Department of Information Technology, University West, Trollhättan, Sweden; 10 Jun 2009.
71. Innovatum Science Center, Trollhättan, Sweden; 9 Jun 2009.
70. *Colloquium*, Van der Waals–Zeeman Institute, University of Amsterdam, Amsterdam, The Netherlands; 5 Jun 2009.
69. American Physical Society March Meeting, Pittsburgh, PA; 19 Mar 2009.
68. 47th AIAA Aerospace Sciences Meeting, Orlando, FL; 6 Jan 2009.
67. Institute for Physical Chemistry, Albert-Ludwigs-Universität, Freiburg, Germany; 19 Dec 2008.
66. Institut für Physik, Johannes-Gutenberg-Universität, Mainz, Germany; 18 Dec 2008.
65. Dipartimento di Fisica, Università degli Studi di Milano, Milano, Italy; 1 Dec 2008.
64. Award lecture, Final Meeting, European Union Marie Curie Network on Dynamical Arrest, Taormina, Sicily; 26 Nov 2008.
63. *Colloquium*, National Research Council Canada, Ottawa, ON; 25 Sep 2008.
62. Fluid Mechanics Conference 7, European Mechanical Society, University of Manchester, Manchester, UK; 15 Sep 2008.
61. Annual Meeting, American Bar Association, New York, NY; 8 Aug 2008.
60. Department of Physics, Università di Napoli, Napoli, Italy; 12 June 2008.
59. Department of Physics, Università degli Studi di Roma “La Sapienza,” Roma, Italy; 10 Jun 2008.
58. Department of Physics, Georgetown University, Washington, DC; 2 Jun 2008.
57. Department of Fundamental Engineering, Institute of Industrial Science, The University of Tokyo, Tokyo, Japan; 22 May 2008.
56. Samarkand State University, Samarkand, Uzbekistan; 8 May 2008.
55. Urgench State University, Urgench, Uzbekistan; 6 May 2008.
54. 10th Anniversary Conference, Harvard University Asia Center, Cambridge, MA; 2 May 2008.
53. Department of Physics, McGill University, Montréal, QC, Canada; 27 Mar 2008.
- 51, 52. *Colloquium* and seminar, Department of Physics, Case Western Reserve University, Cleveland, OH; 28 Feb 2008.
50. Annual Meeting, American Association for the Advancement of Science (AAAS), Boston, MA; 16 Feb 2008.
49. Workshop: Crystallization & Jamming in Soft Matter under Driving, Lorentz Center, Leiden, The Netherlands; 12 Feb 2008.
48. Institute of Materials Physics in Space, German Aerospace Center (DLR), Köln, Germany; 8 Feb 2008.
47. *Colloquium*, Department of Physics, Harvard University, Cambridge, MA; 3 Dec 2007.
46. Iranian Association of Boston, Watertown, MA; 7 Nov 2007.
45. Iranian Academy of Arts, Tehran, Iran; 14 Jun 2007.
44. Conference: Practical & Scientific Course for Cultural Management, Ministry of Education, Tehran, Iran; 14 Jun 2007.
43. Islamic & Iranian Culture & Civilization Committee, Supreme Revolutionary Council for Culture, Tehran, Iran; 13 Jun 2007.
42. Department of Physics, Isfahan University, Isfahan, Iran; 11 Jun 2007.
41. Department of Physics, Sharif University of Technology, Tehran, Iran; 9 Jun 2007.
- 39, 40. Department of Physics, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran; 2 Jun 2007 and 3 Jun 2007.
37. Department of Physics, Tarbiat Modarres University, Tehran, Iran; 29 May 2007.
- 36, 38. Department of Physics, Iman Khomeini International University, Qazvin, Iran; 28 May 2007 and 30 May 2007.
35. Foreign Office Architects, London, Great Britain; 25 May 2007.

34. Center for Middle Eastern Studies, Harvard University, Cambridge, MA; 14 Apr 2007.
33. Graduate School of Design, Harvard University, Cambridge, MA; 13 Apr 2007.
32. Dipartimento di Fisica, Università degli Studi di Milano, Milano, Italy; 25 Jan 2007.
31. Institute for Theoretical Physics II, Heinrich-Heine-Universität, Düsseldorf, Germany; 19 Jan 2007.
30. Workshop: Confocal Microscopy, New England Society for Microscopy Symposium, Woods Hole, MA; 4 May 2006.
29. Institute for Theoretical Physics, Universität Leipzig, Leipzig, Germany; 21 Apr 2006.
28. German Research Centre for Geosciences (GeoForschungsZentrum), Potsdam, Germany; 20 Apr 2006.
27. Fraunhofer-Institute for Surface Engineering and Thin Films (Fraunhofer-IST), Braunschweig, Germany; 18 Apr 2006.
26. Laboratory of Colloids, Glasses and Nanomaterials, Université Montpellier II, Montpellier, France; 12 Apr 2006.
25. Department of Nuclear Engineering, Politecnico di Milano Technical University, Milano, Italy; 11 Apr 2006.
24. Institute of Polymers, Materials Department, ETH-Hönggerberg (Swiss Federal Inst. of Tech.), Zürich, Switzerland; 5 Apr 2006.
23. Debye Institute, Utrecht University, Utrecht, The Netherlands; 31 Mar 2006.
22. FOM–Institute for Atomic and Molecular Physics (AMOLF), Amsterdam, The Netherlands; 30 Mar 2006.
21. Van der Waals–Zeeman Institute, University of Amsterdam, Amsterdam, The Netherlands; 29 Mar 2006.
20. *East Asian Archaeology Seminar*, Department of Anthropology, Harvard University, Cambridge, MA; 9 Feb 2006.
19. *Colloquium*, Department of Physics, Hong Kong Baptist University, Hong Kong; 15 Nov 2005.
18. Joint Seminar, Departments of Physics and of Fine Arts, The Chinese University of Hong Kong, Hong Kong; 14 Nov 2005.
17. Department of Physics, Academia Sinica, Taipei, Taiwan; 11 Nov 2005.
16. *Colloquium*, Department of Physics, Hong Kong University of Science and Technology, Hong Kong; 10 Nov 2005.
15. Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou, China; 7 Nov 2005.
14. Harvard University Asia Center, Harvard Club of New York, New York, NY; 14 Jun 2005.
13. Turkmen Polytechnic Institute, Ashgabat, Turkmenistan; 17 Mar 2005.
12. Mary Energy Institute, Mary, Turkmenistan; 16 Mar 2005.
11. Miras National Cultural Center of Turkmenistan, Ashgabat, Turkmenistan; 15 Mar 2005.
10. Science Department, Turkmen State University, Ashgabat, Turkmenistan; 15 Mar 2005.
*First science lecture presented in Turkmenistan by a foreign researcher after the fall of the Soviet Union.
9. Supreme Council on Science and Technology of Turkmenistan, Ashgabat, Turkmenistan; 15 Mar 2005.
8. Institute of History of Turkmenistan, Ashgabat, Turkmenistan; 14 Mar 2005.
7. Department of Theoretical Physics, Hahn-Meitner Institut, Berlin, Germany; 11 Mar 2005.
6. Department of NanoBiophotonics, Max Planck Institute for Biophysical Chemistry, Göttingen, Germany; 4 Feb 2005.
5. Department of Physics, Università degli Studi di Roma “La Sapienza,” Roma, Italy; 31 Jan 2005.
4. Institute for the History of Science, Chinese Academy of Sciences, Beijing, China; 24 Aug 2004.
3. NASA Space Station Program Control Board, NASA Johnson Space Center, Houston, TX; 10 Aug 2004.
2. Conference: Archaic Jades across the Taiwan Strait, Taipei, Taiwan; 21 Sep 2001.
1. International Center for Diffraction Data, Newtown Square, PA; 15 Mar 2001.

Selected Appointments, Honors and Awards

- National Advisory Committee, National Science Olympiad (2007-2017).
- Early Stage Researcher Prize, European Commission Marie Curie Actions: Research Training Network on Dynamical Arrest (2008).
- Visiting Scholar, Academy of Sciences of Uzbekistan, Tashkent, Uzbekistan (2008).
- Visiting Professor, Imam Khomeini International University, Qazvin, Iran (2007).
- Speakers and Specialists Grant, Bureau of International Information Programs, U.S. Department of State (2005).
- National Defense Science and Engineering Graduate Fellowship (2000-03).
- Phi Beta Kappa and Sigma Xi, Princeton University (2000).
- Princeton University Kusaka Memorial Prize [highest-ranked physics undergrad] (2000).
- National Science Foundation Graduate Fellowship [declined] (2000).
- Barry M. Goldwater Scholarship (1998).
- National Science Olympiad: seven national gold medals, 50 total medals (1990-96).
- National Latin Exam: gold medal (1995).