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Education

- 09/2003–01/2010 **MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT)** MA, USA
Ph.D. in Materials Science and Engineering; Minor: Biophysics
Thesis: In-fiber semiconductor filament arrays
Advisor: [Prof. Yoel Fink](#)
- 09/2000–06/2003 **FUDAN UNIVERSITY** Shanghai, China
M.S. in Physics
Thesis: Theoretical study of low-dimensional multilayer magnetism
Advisor: [Prof. Ruibao Tao \(陶瑞宝教授\)](#) and [Prof. Xiaofeng Jin \(金晓峰教授\)](#)
- 09/1996–06/2000 B.S. in Physics, summa cum laude

Employment

- 2015/09-present **Fudan University** Department of Aeronautics and Astronautics
Professor
- 10/2013-08/2015 **Harvard University** School of Engineering and Applied Sciences
Postdoctoral Fellow, Advisor: [Prof. Shmuel Rubinstein](#)
- 02/2010-09/2013 **MIT** Department of Chemical Engineering
Postdoctoral Associate, Advisor: [Prof. Martin Bazant](#)

Awards

Conference travel grant, MIT (2012);
Gilbert Y Chin Fellowship for promising graduate students, MIT (2003);
Samsung Corporation Scholarship (2002); Tung's Oriental Scholarship (2001); Outstanding Student in Shanghai (2000); Chinese Academy of Space Technology Scholarship (1999); Fudan honor student (1999); Sanwa International Scholarship (1998); Sumitomo Corporation Scholarship (1997).

Publications

1. **D. S. Deng**, W. Aouad, W. Braff, S. Schlumpberger, M. Suss, M. Bazant, Water purification by shock electrodialysis: deionization, filtration, separation, and disinfection. *Desalination* 357, 77 (2015).
 - MIT Tech review: [New Desalination Technique Also Cleans and Disinfects Water](#);
 - featured at [physics today](#), [processingmagazine](#), [wateronline](#), [rwlwater](#), among many others.
2. **D. S. Deng**, E. V. Dydek, S. Schlumpberger, J. H. Han, A. Mani, B. Zaltzman, and M. Z. Bazant, Over-limiting current and shock electrodialysis in porous media. *Langmuir* 29, 16167 (2013).
3. J. Kaufman, G. Tao, S. Shabahang, E. Banaei, **D. S. Deng**, X. D. Liang, S. G. Johnson, Y. Fink and A. F. Abouraddy, Structured spheres generated by an in-fiber fluid instability. *Nature* 487, 463 (2012).

- *Highlight News & Views*, “Materials science: The abilities of instabilities.” **Nature** 487, 440 (2012).
 - MIT news: [Dripping faucets inspire new way of creating structured particles](#); featured at [PhysOrg](#), [nanowerk.com](#), among many others.
 - UCF Today: [UCF nanoparticle discovery opens door for pharmaceuticals](#); featured at [ScienceDaily](#), [R&D magazine](#), [sciencenewsline.com](#), [bio-medicine.org](#), among many others.
 - Spektrum.de (German edition of Scientific American): M. Pollmann, [Materialwissenschaft: Wasserhahn effekt produziert vielseitige Nanopartikel](#).
4. E. V. Dydek, B. Zaltzman, I. Rubinstein, **D. S. Deng**, A. Mani, and M. Z. Bazant, Overlimiting current in a microchannel. **Phys. Rev. Lett.** 107, 118301 (2011).
 5. J. Kaufman, G. M. Tao, S. Shabahang, **D. S. Deng**, Y. Fink, and A. F. Abouraddy, Thermal drawing of high-density macroscopic arrays of well-ordered sub-5-nm-diameter nanowires. **Nano. Lett.** 11, 4768, (2011).
 6. S. Shabahang, J. Kaufman, **D. S. Deng**, and A. F. Abouraddy, Observation of the Plateau-Rayleigh capillary instability in multi-material optical fibers. **Appl. Phys. Lett.** 99, 161909, (2011).
 - Invited paper in Nov 7, 2011, issue of the *Virtual Journal of Nanoscale Science & Technology*.
 7. X. Liang, **D. S. Deng**, J. C. Nave and S. G. Johnson, Linear stability analysis of capillary instabilities in concentric shells, **J. Fluid. Mech.** 683, 235, (2011).
 8. **D. S. Deng**, X. Liang, J. C. Nave, S. G. Johnson, and Y. Fink, Exploration of in-fiber nanostructures from capillary instability, **Opt. Express.** 19, 16273, (2011).
 9. **D. S. Deng**, N. D. Orf, S. Danto, A. F. Abouraddy, J. D. Joannopoulos, and Y. Fink, Processing and properties of centimeter-long, in-fiber, crystalline-selenium filaments, **Appl. Phys. Lett.** 96, 023102, (2010).
 10. **D. S. Deng**, N. Orf, A. F. Abouraddy, A. Stolyarov, J. Joannopoulos, H. Stone and Y. Fink, In-fiber semiconductor filaments arrays, **Nano Letter.** 8, 4265, (2008).
 - MIT CMSE Highlights: A new process for creating in-fiber semiconductor filament arrays. (2009)
 11. **D. S. Deng**, X. F. Jin, and Ruibao Tao, Temperature-driven dynamical phase transition: Spin reorientation in antiferromagnetism, **Phys. Rev. B** 69, 172403, (2004).
 12. **D. S. Deng**, X. F. Jin, and Ruibao Tao, Magnon gap in periodic anisotropic magnetic superlattice, **Phys. Rev. B** 66, 104435, (2002).
 13. **D. S. Deng**, X. F. Jin, and Ruibao Tao, Exchange bias in ferromagnetic/compensated antiferromagnetic bilayers, **Phys. Rev. B** 65, 172402, (2002).
 14. **D. S. Deng**, X. F. Jin, and Ruibao Tao, Antiferromagnetic domains in a two-dimensional Heisenberg square lattice, **Phys. Rev. B** 65, 132406, (2002).
 15. Y. J. Jiang, **D. S. Deng**, Ruibao Tao, Evidence of stripe formation tendency in t-J model, **Physica C** 377, 85, (2002).