

Curriculum Vitae for Peter L. Hagelstein

Contact Information at NPS:

Room 115, Meyer Institute, Bullard Hall
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Contact Information at MIT:

Room 36-568, Massachusetts Institute of Technology
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Employment:

1986 - present: Associate Professor, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology

1981 - 1986: Staff physicist, Lawrence Livermore National Laboratory

1981 - 1986: Principal Project Scientists for the X-ray Laser Program (R-Program), Lawrence Livermore National Laboratory

1982 - 1985: Head of XRASER Code Group, Lawrence Livermore National Laboratory

Education:

1981 PhD - MIT, EE&CS Department, MIT, Thesis: *Physics of X-ray Laser Design*

1976 MS - MIT, EE&CS Department, Thesis: *Laser modelocking models*

1976 BS - MIT, EE&CS Department, Thesis: *Modelocking with a saturable absorber*

Courses taught at MIT:

6.728 Applied quantum and statistical physics

6.673 Introduction to numerical simulation in engineering and applied physics

6.012 Microelectronic devices and circuits

6.013 Electromagnetic fields and energy

6.014 Electrodynamics

6.013N Electrodynamics and applications

6.007 Applied electromagnetics

6.003 Signals and systems

6.002 Circuits and electronics

- 6.041 Probabilistic systems analysis
- 6.017 Introduction to quantum physics
- 8.211 Introduction to quantum physics

Awards:

- 2004 Preparata medal, International society for condensed matter nuclear science
- 1990 Award for excellence in plasma research, APS
- 1985 One of top innovators of 1985, Science Digest award
- 1984 Ernest O. Lawrence award for contributions to national security, DoE
- 1984 One of America's 100 brightest scientists under 40, Science Digest award
- 1981 Exceptional PhD dissertation award, Fannie and John Hertz Foundation
- 1975-1979 Fannie and John Hertz Foundation Fellowship
- 1972 Samuel E. Lunden Leadership award, MIT
- 1972 National Merit scholarship award

Books:

P. L. Hagelstein, S. D. Senturia, T. P. Orlando, *Introductory Applied Quantum and Statistical Mechanics*, John Wiley and Sons, NY 2004 (800 pages).

Condensed Matter Nuclear Science, Proceedings of the 10th international conference on cold fusion (ICCF10), edited by P. L. Hagelstein and S. R. Chubb, World Scientific, Singapore 2006 (1016 pages).

Selected recent publications:

- "Level splittings in association with the multi-photon Bloch-Siegert shift," (with Irfan Chaudhary) *J. Phys B*, **41** 035601 (2008).
- "Multiphoton Bloch-Siegert shifts and level splittings in spin-one systems," (with Irfan Chaudhary) *J. Phys B*, **41** 035602 (2008).
- "Multiphoton Bloch-Siegert shifts and level splittings in a three-level system," (with Irfan Chaudhary) *J. Phys B*, **41** 105603 (2008).
- "Electron mass shift in nonthermal systems," (with Irfan Chaudhary) *J. Phys B*, **41** 125001 (2008).
- "Excitation transfer in two two-level systems coupled to an oscillator," (with Irfan Chaudhary) *J. Phys B*, **41** 135501 (2008).
- "Progress toward a theory for excess heat in metal deuterides," (with Irfan U. Chaudhary, Michael C.H. McKubre, and Francis Tanzella) *Current Trends in International Fusion Research – Proceedings of the Seventh Symposium*. Edited by Emilio Panarella and Roger Raman. NRC Research Press, National Research Council of Canada, Ottawa, ON K1A 0R6 Canada, 2007
- "Models relevant to excess heat production in the Fleischmann-Pons experiment," (with Irfan Chaudhary) *Low-energy nuclear reactions sourcebook*, ACS Symposium Series 998 page 249 (2008).
- "Thermal changes in palladium deuteride induced by laser beat frequencies," (coauthored with Dennis Letts and Dennis Cravens) *Low-energy nuclear reactions sourcebook*, ACS Symposium Series 998 page 337 (2008).
- "Progress on phonon exchange models for excess heat in metal deuterides," (with Irfan Chaudhary) *Proc. 13th International Conference on Cold Fusion* (2007).
- "Stimulation of optical phonons in deuterated palladium," (coauthored with Dennis Letts) *Proc. 14th International Conference on Cold Fusion* (2008).
- "Excitation transfer and energy exchange processes for modeling the Fleischmann-Pons excess heat effect,"

(with Irfan Chaudhary) *Proc. 14th International Conference on Cold Fusion* (2008).

US Patents:

P. Hagelstein, "X-ray Laser," U. S. Patent No. 4,589,113.

P. Hagelstein, "Soft X-ray laser using pumping of 3P and 4P levels of He-like and H-like ions" U. S. Patent No. 4,660,203.

P. Hagelstein and C. Eugster, "X-ray Detector," U.S. Patent No. 4,873,439.

Y. Kucherov and P. Hagelstein, "Thermal diode for energy conversion" U.S. Patent No. 6,396,191.

Y. Kucherov. and P. Hagelstein, "Hybrid thermionic energy converter and method" U.S. Patent 6,489,704.

Y. Kucherov and P. L. Hagelstein, "Solid-state thermionic refrigeration," application U.S. Patent 6,779,347.

Y. Kucherov and P. Hagelstein, "Hybrid thermionic energy converter and method" U.S. Patent 6,906,449.

Y. Kucherov and P. L. Hagelstein, "Tunneling effect converters," U.S. patent 6,946,596.

Y. Kucherov, Y. and P. L. Hagelstein, "Solid state energy converter," U.S. patent 7,109,408 (2006).

Y. Kucherov and P. L. Hagelstein, "Phonon laser,' US patent 7,411,455 (2006).