

Curriculum Vita for Carl Franck

Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, NY
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Education and Training:

Postdoctoral Research Associate; Physics, Univ. of Virginia, Charlottesville, 1978-82

Ph.D. Physics, Thesis: "An Inelastic Electron Scattering Investigation of the Complete 4d Shell" Princeton Univ., 1978; IBM Fellowship, 1976-7

A.B. Physics, summa cum laude, Harvard College, 1974, Harvard Natl. Scholarship; Phi Beta Kappa.

Appointments (since 1982): Associate Professor, Physics; 1988-present, Cornell Univ., Visiting Professor, Physics, Univ. of Bristol, England; 1991, Assistant Professor; 1982-8, Physics, Cornell Univ.

Notable Invited Research Talks: at Les Houches School of Physics, France; meetings of Amer. Chem. Soc., Amer. Physical Soc. and Gordon Conference; workshop for x-ray atomic physics at the Advanced Photon Source at Argonne National Lab.; workshop on condensed matter physics at boundaries at Brookhaven National Laboratory, in addition to seminars and colloquia at universities: e.g. University of Massachusetts, Amherst; University of Indiana, Bloomington; Bristol University UK, Michigan State University, East Lansing; Seventh International Conference on Biological Physics (San Diego 2011); Statistical Mechanics Conference Rutgers University (May, 2012)

Research Grants: Most recently from NIH through subcontract with University of California, San Diego, coPI; earlier from National Science Foundation and Research Corporation

Scientific Community Service: Reviewer and Panelist for National Science Foundation, reviewer for Department of Energy, Reviewer for journals including Physical Review/ Physical Review Letters, American Journal of Physics, Jour. Chem. Physics, Jour. Colloids and Interface Sci.

Cornell Center Memberships: Cornell Center for Materials Research

Supervised Student Research (over approximately the past 3 years):

Experimental Biological Physics by physics graduate students Kayvon Daie, Igor Segota as well as undergraduates Jared Ginsberg, Michael Conroy Andrew Zhao (REU summer student), Eitan Neidich, Surin Mong, Elisabeth Sebesta, Anthony Hazel (REU summer student), Archana Rachakonda, Michael Haggerty, Sungsu Lee, Catherine Lussenhop, Kevin Tharratt, Emily Lawson (REU summer student), Nicholas Livezey, Chenzheng Wang, Laurent Boulet, Ziyu Ye, Junseok Oh, Sarah Bennedsen

Graduate Thesis Research Supervised: 13 doctorates completed (including one as co-supervisor) three master's thesis completed

Postdoctoral Research Co-supervised: one

Recent Teaching Developments: continued upgrades for Physics 3310, Intermediate Laboratory. In collaboration with lecture demonstration support specialist Jenny Wurster, developed replacement electromagnetic wave radiation demonstration

Advising: serving as undergraduate major and entering student advisor, on graduate special committees

Recent University Service: Faculty Senate, undergraduate admissions; panelist on discussion "Undergraduate Research: Setting Expectations and Designing Doable Projects." Center for the Integration of Research, Teaching, and Learning, Cornell Graduate School, February, 2013, chair Clark Hall/ Physical Sciences Building laboratory safety committee

Recent Community Service: developed various science outreach programs often in Association with the Tompkins County Amateur Radio Club, at the Ithaca Festival, also for migrant farmworker camp at King Ferry, Sciencenter Ithaca, and with Cub Scouts, middle school teachers, homeschooled children, for 4H summer camp in Ontario County, developed radiophysics project for Ithaca High School students in collaboration with Deborah Lynn, IHS teacher

Recent Papers: (preprints available at www.franckgroup.lassp.cornell.edu)

- ``Spontaneous emergence of large scale cell cycle synchronization in amoeba colonies,`` Igor Segota, Laurent Boulet, David Franck & Carl Franck. *Physical Biology* 11, 036001 (2014)
- ``Allee effect in eukaryotic cell populations,`` Igor Segota, Ariana Strandburg-Peshkin, Xiao-Qiao S. Zhou, Archana Rachakonda, Benjamin Yavitt, Catherine J. Lussenhop, Sungsu Lee, Kevin Tharratt, Amrish Deshmukh, Elisabeth Sebesta, Myron Zhang, Sharon Lau, Anthony Hazel and Carl Franck) under revision for *Public Library of Science Biology* (2014)
- ``Extracellular signal amplification by eukaryotic cells,`` Igor Segota and Carl Franck under revision for *Physical Review Letters* (2014)
- ``High fidelity information processing in folic acid chemotaxis of *Dictyostelium* amoebae,`` Igor Segota, Surin Mong, Eitan Neidich, Archana Rachakonda, Catherine J. Lussenhop and Carl Franck) *Jour. Royal Soc. Interface* 10, 20130606 (2013)
- ``Investigating the Transition to Multicellular Life on Small Scales by Physically Modifying a Chemical Signaling Channel,`` Kayvon Daie, Bradley Webster, Ryan Monaghan, and Carl Franck; under revision for *Physical Review E* (2014)
- ``Live Cell Flattening: Traditional and Novel Approaches,`` Christian Westendorf, Albert J. Bae, Christoph Erlenkamper, Edouard Galland, Carl Franck, Eberhard Bodenschatz, and Carsten Beta, *PMC Biophysics* 3:9 (2010)
- ``Contact-Mediated Cell-Assisted Cell Proliferation in a Model Eukaryotic Single-cell Organism: An Explanation for the Lag Phase in Shaken Cell Culture.`` Carl Franck, Wui Ip, Albert Bae, Nathan Franck, Elijah Bogart, and Thanhbinh Thi Le, *Physical Review E* 77, 041905 (2008)
- ``*Dictyostelium* Discoideum Chemotaxis: Threshold for Directed Motion,`` Loling Song, Sharvari M. Nadkarni, Hendrik U. Bodeker, Carsten Beta, Albert Bae, Carl Franck, Wouter-Jan Rappel, William F. Loomis and Eberhard Bodenschatz , *European Journal of Cell Biology* 85, 981 (2006)
- ``Improving Slide-Based Assays by Stirring: Application of Liquid-on-Liquid Mixing to Immunofluorescence Staining of *Drosophila* Polytene Chromosomes,`` Richard C. Yeh, Jerome K. Hyun, Amber K. Boehm, John Lis, and Carl Franck, *Journal of Biochemical and Biophysical Methods*, 64, 50 (2005)
- ``Pair Correlations of a Dilute Charged Colloidal Fluid Near a Glass Wall,`` Carl Franck, Michael Covelli, and Richard V. Durand, *Phys. Rev. E* 67, 041402 (2003)