

Felix P. Lu, Ph.D.

Research Scientist

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Education

University of California at San Diego	B.S. Engineering Physics (1996)
University of California at San Diego	M.S. Materials Science (1998)
University of California at San Diego	Ph.D. Materials Science (2004)

Thesis advisors: Profs. Paul K.L. Yu and S. S. Lau

Thesis topic: Electrical Characterization of mechanically and thermally exfoliated silicon films for flat panel display applications.

Key accomplishment: first electrical characterization of mechanically exfoliated silicon thin film along with fabrication and characterization of MOSFET using this film.

Appointments and Research

August 2006 – Present

Vice President

Applied Quantum Technologies, Inc.
Durham, NC 27705

August 2005 – Present

Research Scientist

Department of Electrical and Computer Engineering,
Duke University, Durham, NC
Silicon to III-V wafer fusion and device fabrication process development

April 2004 – July 2005

Engineer/Scientist

Technology Qualification/Reliability and Failure Analysis group
Boeing Satellite Development Center, El Segundo, CA
SiGe, and III-V HBT and HEMT reliability testing for satellite applications

March 1998 – March 2004

Graduate Student Researcher

Design, fabrication, and characterization of semiconductor and photoelastic optical waveguides
Plasma activated silicon hydrophilic wafer bonding; silicon film exfoliation and SOI fabrication
Device fabrication and characterization
Teaching assistant for numerous electrical engineering undergraduate courses.

Publications and Presentations

Kyle Mckay, Felix P. Lu, Jungsang Kim, Changhyun Yi, April S. Brown, Aaron R. Hawkins, “Band discontinuity measurements of the wafer bonded InGaAs/Si heterojunction”, Submitted to Applied Physics Letters – Jan 2007.

D.L. Hansen, M.J. Robinson, F. Lu, “Total Dose Effects in InP Devices”, Submitted to Nuclear Space Radiation Effects Conference 2007, and published in IEEE Transactions on Nuclear Science.

F. Lu, D. Qiao, M. Cai, P. K. L. Yu, S. S. Lau, R. K. Y. Fu, L. S. Hung, C. P. Li, P. K. Chu, H. C. Chien and Y. Liou, Ion-cutting of Si onto glass by pulsed and direct-current plasma immersion

Updated February 17, 2007

ion implantation, J. Vac. Sci. Technol. B 21.5., Sep/Oct 2003, pp.2109-13

F. Lu, J. Bickford, C. Novotny, P. K. L. Yu, S. S. Lau, K. Henttinen, T. Suni, and I. Suni, Strain and electrical characterization of metal-oxide-semiconductor field-effect transistor fabricated on mechanically and thermally transferred silicon on insulator films, J. Vac. Sci. Technol. B 22(6), Nov/Dec 2004, pp. 2691-7.

Presentation at Electronic Materials Conference, June 25-27, 2003; Salt Lake City, Utah

Research Interests

Semiconductor fabrication technologies, wafer bonding and wafer fusion – physico-chemical effects on the interface, energy conversion technologies, MEMS design and applications