

SUNG YONG PARK

Chemistry Department
Northwestern University
Evanston, Illinois 60208-3113

Tel: +1-847-467-4985

Fax: +1-847-467-2447

Internet: parksy@chem.northwestern.edu

Born on July 7, 1970, Seoul, Korea.

Marital Status: Married

Education

Mar. 1989 - Feb. 1993 Undergraduate studies at Seoul National University.
Bachelor of Science in Physics (cum laude).

Mar. 1993 - Feb. 1995 Graduate studies at Seoul National University.
Master of Science in Physics.

Advisor : Prof. M.Y. Choi

Dissertation : Surface Growth Phenomena
with Mixed Deposition Rules

Mar. 1995 - Aug. 1999 Graduate studies at Seoul National University.
Doctor of Philosophy in Physics.

Advisor : Prof. M.Y. Choi

Dissertation : Effects of Frustration and Disorder on
Phase Transition and Dynamic Properties
of XY Model and Related Systems

Academic Positions

Sep. 1996 - Dec. 1996 Lecturer, University of Seoul.

Sep. 1999 - Dec. 1999 Postdoctoral Fellow, Center for Theoretical Physics,
Seoul National University.

Jan. 2000 - Dec. 2000 Postdoctoral Fellow, Harvard University.

Jan. 2001 - Dec. 2001 Research Fellow, Korea Institute for Advanced Study.
Jan. 2002 - Jun. 2004 Postdoctoral Fellow, the Ohio State University.
Oct. 2003 - Jun. 2004 Lecturer, the Ohio State University.
Jul. 2004 - present Postdoctoral Fellow, Northwestern University.

Visiting Positions

Jul. 1997 - Aug. 1997 Research collaborator, HLRZ KFA, Jülich, Germany.

Teaching Experience

Undergraduate courses: Introductory Physics (University of Seoul).

Graduate courses: Computational Physics (The Ohio State University).

Honors and Awards

Jan. 2002 - Dec. 2002 University Postdoctoral Fellowship, Ohio State University
Jan. 2000 - Dec. 2000 Scholarship from Rotary Foundation
Mar. 1995 - Aug. 1999 Research Assistantship, Seoul National University
Jul. 1997 - Aug. 1997 Scholarship from DAAD(Germany) and KOSEF(Korea)
Mar. 1995 - Feb. 1996 Predoctoral Fellowship, Seoul National University
Sep. 1993 - Feb. 1997 Teaching Assistantship, Seoul National University

Publications

Journal

1. G.S. Jeon, S.Y. Park, and M.Y. Choi, "Double transitions in the fully frustrated XY model," *Phys. Rev. B* **55**, 14088 (1997).
2. B.J. Kim, J. Kim, S.Y. Park, and M.Y. Choi, "Quantum phase transitions in superconducting arrays with general capacitance matrices," *Phys. Rev. B* **56**, 395 (1997).
3. S.Y. Park, J.-W. Lee, M.-C. Cha, M.Y. Choi, B.J. Kim, and D. Kim, "Possibility of direct Mott insulator-to-superfluid transitions in weakly disordered boson systems," *Phys. Rev. B* **59**, 8420 (1999).
4. M.Y. Choi and S.Y. Park, "Phase transition in the two-dimensional gauge glass," *Phys. Rev. B* **60**, 4070 (1999).
5. S.Y. Park, M.Y. Choi, B.J. Kim, G.S. Jeon, and J.S. Chung, "Intrinsic finite-size effects in the two-dimensional XY model with irrational frustration," *Phys. Rev. Lett.* **85**, 3484 (2000).
6. S.Y. Park and D. Stroud, "Theory of melting and the optical properties of gold/DNA nanocomposites," *Phys. Rev. B* **67**, 212202 (2003).
7. S.Y. Park and D. Stroud, "Theory of the optical properties of a DNA-modified gold nanoparticle system," *Physica B* **338**, 353 (2003).
8. S.Y. Park and D. Stroud, "Structure formation, melting, and optical properties of gold/DNA nanocomposites: Effects of relaxation time," *Phys. Rev. B* **68**, 224201 (2003).
9. S.Y. Park and D. Stroud, "Surface plasmon dispersion relations in chains of metallic nanoparticles: Exact quasistatic calculation," *Phys. Rev. B* **69**, 125418 (2004).
10. S.Y. Park and D. Stroud, "Splitting of surface plasmon frequencies of metal particles in a nematic liquid crystal," *Appl. Phys. Lett.* **85**, 2920 (2004).
11. S.Y. Park and D. Stroud, "Boojums versus baseball: Deformation effects on optical properties of a Liquid-Crystal-coated gold nanoparticle," submitted to *Phys. Rev. Lett.*

12. S.Y. Park, D. Georganopoulou, G.C. Schatz, and C.A. Mirkin, “Low-temperature structure of a large nanoparticle aggregate and its application to bio-barcode assay,” in preparation.
13. S.Y. Park, J. Gibbs, G.C. Schatz, and S. T. Nguyen, “Melting transition of DNA-conjugates aggregates,” in preparation.
14. S.Y. Park, H. Hwang, and G.C. Schatz, “Finite-temperature structure of a single strand DNA on gold surface in an ionic solution,” in preparation.
15. S.Y. Park and D. Stroud, “Sol-gel transition in gold/DNA nanocomposites,” in preparation.
16. S.Y. Park and D. Stroud, “Effective medium theory for gold/DNA nanocomposites,” in preparation.
17. S.Y. Park, H. Park, and J. Lee, “Histogram method for the non-equilibrium absorbing transitions,” in preparation.
18. S.Y. Park, S.-Y. Kim, and H. Park, “Yang-Lee zeros for a nonequilibrium phase transition: exact enumeration study,” in preparation.
19. S.Y. Park and D.R. Nelson, “Non-Hermitian Bose glass-to-superfluid transition,” in preparation.

Conference Proceedings

1. M.Y. Choi, S.Y. Park, and B.J. Kim, “Static and dynamic behaviors of the two-dimensional XY gauge glass”, Czech. J. Phys. **46** Suppl. S4, 2279 (1996).

Research Interests

Optical properties and phase transitions of nanoparticle systems
Surface plasmon optics
Phase transitions and quantum phase transitions in various systems
Dynamics in complex systems
Computational methods in physics

References

Prof. George C. Schatz
Chemistry Department, Northwestern University, Evanston, IL60208, U.S.A.
Tel: +1-847-491-5657
schatz@chem.northwestern.edu

Prof. David G. Stroud
Department of Physics, Ohio State University, Columbus, OH43210, U.S.A.
Tel: +1-614-292-8140
stroud@mps.ohio-state.edu

Prof. Richard J. Furnstahl
Department of Physics, Ohio State University, Columbus, OH43210, U.S.A.
Tel: +1-614-292-4830
furnstah@mps.ohio-state.edu

Prof. David R. Nelson
Lyman Laboratory of Physics, Harvard University, Cambridge, MA02138, U.S.A.
Tel: +1-617-495-4331
nelson@cmt.harvard.edu

Prof. Moo Young Choi
School of Physics, Seoul National University, Seoul, 151-747, Korea
Tel: +82-2-880-6615
mychoi@snu.ac.kr