

VITA

Chang-li Yiu

Visiting Emeritus Professor in the Departments of Physics and Mathematics (Appointed for September 2009 to May 2010)

Professor of Physics and Mathematics (in phased retirement)

Department of Physics and Department of Mathematics

Pacific Lutheran University

Tacoma WA 98447

Phone: (253) 535-8487

Fax: (253) 535-8700

e-Mail: yiuca@plu.edu

Education

- Ph.D. 1972 Columbia University, New York, New York, USA (Area of Ph.D. thesis: Theoretical Particle Physics)
- M.S. 1965 Tsinghua University, Taiwan, Republic of China (Area of Masters thesis: Statistical Mechanics)
- B.S. 1962 Tunghai University, Taiwan, Republic of China (Major: Physics)

Work Experience

- Professor of Physics and Mathematics, Department of Physics and Department of Mathematics, Pacific Lutheran University, Tacoma, WA, 2000-2005
- Dean, Division of Natural Sciences, Pacific Lutheran University, Tacoma WA, 1998 – 2002
- Director of Murdock Undergraduate Research Program, Division of Natural Sciences, Pacific Lutheran University, Tacoma WA, 2000 - 2002
- Long-Term Visiting Scientist, Max-Planck-Institut für Strömungsforschung, Germany, 1989 – 1998.
- Professor of Mathematics, Department of Mathematics, Pacific Lutheran University, Tacoma, WA, 1986 - 2000.
- Chair, Department of Mathematics, Pacific Lutheran University, 1994-95.
- Associate Professor of Mathematics, Department of Mathematics and Computer Science, Pacific Lutheran University, Tacoma, WA, 1980-1985.
- Assistant Professor of Mathematics, Mathematics Department, Pacific Lutheran University, Tacoma, WA, 1975-1980.
- Assistant Professor of Physics, Physics Department, Pacific Lutheran University, Tacoma, WA, 1973-1975.
- Assistant Professor, Physics Department, Columbia University, Summer Sessions, 1971, 1972.
- Part-time Instructor, Physics Department, Columbia University, 1972-1973.

Sub-Disciplinary Area of Teaching Expertise

- Elementary Astronomy
- History of Chinese Painting

Courses Taught

Nuclear Physics
Quantum Mechanics
Electromagnetic Theory; Electromagnetic Waves
Classical Mechanics
Mathematical Physics
General Physics
Philosophy of Space and Time
Man and Physical Universe (a physics for poets course)

Introductory Astronomy

Mathematical Analysis
Differential Equations
Linear Algebra
Numerical Analysis
Calculus I, II, III
Discrete Structure
Matrix Algebra
College Algebra and Trigonometry
Functions of One Complex Variable

Representation Theory of Group (Seminar course given at Max-Planck Institute)
General Relativity (Seminar course to faculty members at PLU)
Lie Group and Ordinary Differential Equations (Seminar course to faculty members at PLU)

History of Chinese Painting
Language, Symbol and Myth (Co-Taught with faculty from Religion, English, Anthropology)

Affiliations

- American Physical Society
- Columbia History of Science Group
- Art Students League of New York

Publications

- "The Debye-Waller Factor of Graphite," (with H.H. Chen), Physics Letters, Vol. 48A, number 2, p. 77 (1974).
- "The Levi-Civita Tensor and Identities in Vector Analysis," (with C.O. Wilde), UMAP Modules, (1982).
- "A Simple Method for Calculating the Exchange Energy for H_2^+ from Polarization Perturbation Theory," (with K.T. Tang, J.P. Toennies), Chem. Phys. Lett. **162**, 170 (1989).
- "The Exchange Energy of H_2^+ from Polarization Perturbation Theory," (with K.T. Tang, J.P. Toennies), J. Chem. Phys. **94**, 7266-7277 (1991).
- "Exchange Energy of Alkali-Metal Dimmer Cation Calculated From the Atomic Polarizability with the Holstein-Herring Method," (with K.T. Tang, J.P. Toennies, M. Wanshura) Phys. Rev. A **46**, 3746-3752 (1992).
- "The Exchange Energy of H_2^+ Calculated from the Exact First-Order Wave Function of Polarization Perturbation Theory," (with G.L. Guo, K.T. Tang), Chem. Phys. Lett. **203**, 583-585 (1993)
- "The Interaction Potential of H_2^+ Calculated from the Exact First-Order Wave Function of the Polarization Perturbation Theory," (with G.L. Guo, K.T. Tang, J.P. Toennies), J. Chem. Phys. **98**, 8777-8784 (1993)
- "Exchange Energy of H_2 Calculated by the Surface Integral Method in Zeroth Order Approximation," (with K.T. Tang, J.P. Toennies), J. Chem. Phys. **99**, 377 (1993)
- "The Perturbation Calculation of Van der Waals Potentials," (with K. T. Tang, J. P. Toennies) Theor. Chim. Acta. **88**, 169-181 (1994).
- "A Perturbation Calculation of the Ground State ($X^1 \Sigma_g^+$) energy of the Hydrogen Molecule," (with K. T. Tang, J. P. Toennies, T. Cwiok, B. Jeziorski, W. Kolos, R. Moszynski), Chem. Phys. Lett. **224**, 476-482 (1994).
- "An Accurate Perturbation Calculation of the He-He Van der Waals Potentials," (with K. T. Tang, J. P. Toennies), Phys. Rev. Lett. **74**, 1546 (1995).
- "Angular Momentum Coupling in the Exchange Energy of Multi-Electron Systems," (with U. Kleinekathöfer, K. T. Tang, J. P. Toennies), J. Chem. Phys. **103**, 6617 (1995).
- "Potentials for Some Rare Gas and Alkali-helium Systems Calculated from the Surface Integral Method," (with U. Kleinekathöfer, K. T. Tang, J. P. Toennies), Chem. Phys. Lett. **249**, 257 (1996).
- "Van der Waals Potentials of He_2 , Ne_2 , and Ar_2 with the Exchange Energy Calculated by the Surface Integral Method," (with U. Kleinekathöfer, K. T. Tang, J. P. Toennies), J. Chem. Phys. **107**, 9502 (1997).
- "Generalized Heitler-London Theory for Interatomic Interaction and Surface Integral Method for Exchange Energy," (with K. T. Tang, J. P. Toennies), International Review in Physical Chemistry (London), **17**, 363(1998)
- "The Generalized Heitler-London theory for the H_3 Potential Energy Surface," (With U. Kleinekathöfer, K.T. Tang, J.L. Toennies), J. Chem. Phys. **111**, 3377(1999)

- “Three-body Exchange Energies in H₃ and He₃ Calculated by The Surface Integral Method,” (with U. Kleinekathöfer, T. I. Sachse, K. T. Tang, J. P. Toennies), *J. Chem. Phys.* 113, 948(2000)
- “New Insight Into Exchange Energy of Covalent Chemical Bonds”, (with K. T. Tang, J. P. Toennies), *Jour. of Chinese Chemical Society*, **2001**, 48,365-369
- “Asymptotic Exchange Energy of Heteronuclear Dimers,” (with K. T. Tang and W. G. Greenwood,) *The Journal of Physical Chemistry*, Special Issue: J. Peter Toennies Festschrift, (2011).