Hongfei Wang
Chief Scientist
Environmental Molecular Sciences Laboratory
Pacific Northwest National Laboratory

B. Sc., in Chemical Physics, University of Science & Technology of China, China, 1988
M. A., Columbia University, New York, 1992
M. Phil., Columbia University, New York, 1995
Ph.D., in Physical Chemistry, Columbia University, New York, 1996

Hongfei Wang has an international reputation for his research studies in the field of surface nonlinear spectroscopy and physical chemistry of surfaces and interfaces. He specializes in the spectroscopy and dynamics of molecular surfaces and interfaces, particularly in quantitative spectral and structural analysis of molecular surfaces based on the accurate measurements with nonlinear spectroscopic techniques. He has published research on coherent nonlinear light scattering from submicron particle and colloidal surfaces, development of the symmetry and polarization analysis of the surface nonlinear spectroscopy, accurate determination of molecular orientation and conformation of molecular liquid, membrane and film surfaces, and applications of surface nonlinear spectroscopy in photochemistry and surface molecular chirality recognition. He has helped the development of the surface nonlinear spectroscopy into a analytical probe of the molecular surfaces and interfaces.

History— 6/09- present, **Chief Scientist**, Environmental Molecular Sciences Laboratory (EMSL), PNNL; 3/99-6/09 – **Research Professor** - Institute of Chemistry(IC), Chinese Academy of Sciences(CAS); 10/00-10/04 **Director of Molecular Reaction Laboratory**, ICCAS & Deputy Director of the State Key laboratory of Molecular reaction Dynamics, China; 1/06-12/09, **Executive Associate Editor**, Chinese Journal of Chemical physics, Chinese Physical Society; 1/01-present **Adjunct Professor**, Department of Chemical Physics, University of Science & technology of China (USTC); 11/02-present **Adjunct Professor**, Department of Physics, Anhui Normal University, China; 11/96-03/99 **Post Doctoral Research Associate**, E.I. DuPont Marshall Laboratory & Department of Chemistry, University of Pennsylvania; 9/91-9/96 **Graduate Teaching/Research Assistant**, Department of Chemistry, Columbia University; 9/88-5/91 **Graduate Assistant**, Department of Chemical Physics, USTC, China.

Recognition — **NSFC Distinguished Young Scholar**, National Natural Science Foundation of China (NSFC) (1/05-12/08); **The Hundred Talent Project**, Chinese Academy of Sciences (7/99-6/02); **Fellow**, American Physical Society (APS), 2012.

Publications — Authored or coauthored 52 peer reviewed scientific journal publications, 4 peer reviewed proceedings papers, technical in the areas described above.

Professional Activities — **Member** of the American Chemical Society (ACS), American Physical Society (APS), and American Association for the Advancement of Science (AAAS); **Permanent Member** of the Chinese Chemical Society; **Co-Organizer** – Special Focus Topic: Chemical and Spectroscopic Applications of Nonlinear Optics, American Physical Society March Meeting, Baltimore, Maryland, U.S.A., 2006; **Guest Editor,** The "Kenneth B. Eisenthal Festschrift", the Journal of Physical Chemistry C, Vol. 111, Issue 25, 2007.

Selected Recent Publications (within last five years):

Polarization and Experimental Configuration Analysis of Sum Frequency Generation Vibrational Spectra, Structure and Orientational Motion of Air/Water Interface, Wei Gan, Dan Wu, Zhen Zhang, Ran-ran Feng, and **Hong-fei Wang***, **J. Chem. Phys.,** 124, 114705, 2006.

Quantitative Measurement and Interpretation of Optical Second Harmonic Generation from Molecular Interfaces, **Phys. Chem. Chem. Phys.**, Wen-kai Zhang, **Hong-fei Wang***, and De-sheng Zheng, 8, 4041-4052, 2006. Invited Review.

Adsorption at a Carbon Black Microparticle Surface in Aqueous Colloids Probed by Optical Second-Harmonic Generation, **Hong-fei Wang,** Thomas Troxler, An-gong Yeh, and Hai-lung Dai*, **J. Phys. Chem. C**, 111, 8708-8715, 2007.

Microscopic molecular optics theory of surface second harmonic generation and sum-frequency generation spectroscopy based on the discrete dipole lattice model, De-Sheng Zheng, Yuan Wang, An-An Liu, and **Hong-fei Wang***, **Int. Rev. Phys. Chem.**, 27, 629-664, 2008.

Water penetration/accommodation and phase behaviour of the neutral Langmuir monolayer at the air/water interface probed with sum frequency generation vibrational spectroscopy (SFG-VS), Zhen Zhang, De-sheng Zheng, Yuan Guo and **Hong-fei Wang***, **Phys. Chem. Chem. Phys.**, in press, 11, 991-1002, 2008.

Inhomogeneous and Spontaneous Formation of Chirality in the Langmuir Monolayer of Achiral Molecules at the Air/Water Interface Probed by In Situ Surface Second Harmonic Generation Linear Dichroism, Yan-yan Xu, Yi Rao, De-sheng Zheng, Yuan Guo, Ming-hua Liu, and **Hong-fei Wang*, J. Phys. Chem. C,** 113, 4088–4098, 2009.

Specific Na+ and K+ Cation Effects on the Interfacial Water Molecules at the Air/Aqueous Salt Solution Interfaces Probed with Non-resonant Second Harmonic Generation (SHG), Hong-tao Bian, Ran-ran Feng, Yuan Guo, and **Hong-fei Wang***, **J. Chem. Phys.**, 130, 134709, 2009.

Spectroscopic Evidence for the Specific Na+ and K+ Interactions with the Hydrogen-bonded Water Molecules at the Electrolyte Aqueous Solution Surfaces, Ran-ran Feng, Hong-tao Bian, Yuan Guo, and **Hong-fei Wang***, **J. Chem. Phys.**, 130, 134710, 2009.

Observation of the Interference between the Intramolecular IR-Visible and Visible-IR Processes in the Doubly Resonant Sum Frequency Generation Vibrational Spectroscopy of Rhodamine 6G Adsorbed at the Air/Water Interface, Dan Wu, Gang-Hua Deng, Yuan Guo and **Hong-fei Wang***, **J. Phys. Chem.. A,** 113, 6058-6063, 2009.

Quantitative Surface Chirality Detection with Sum Frequency Generation Vibrational Spectroscopy: Twin Polarization Angle Approach, Feng Wei, Yan-yan Xu, Yuan Guo, Shi-lin Liu, **Hong-fei Wang***, **Chin. J. Chem. Phys.**, 22, 592-600, 2009.

Consistency in the Sum Frequency Generation Intensity and Phase Vibrational Spectra of the Air/Neat Water Interface, Ran-ran Feng, Yuan Guo, Rong Lu, Luis Velarde, **Hong-fei Wang***, **J. Phys. Chem. A**, 115, 6015-6027, 2011.

Spectroscopic phase and lineshapes in high-resolution broadband sum frequency vibrational spectroscopy: Resolving interfacial inhomogeneities of `identical' molecular groups. Luis Velarde, Xianyi Zhang, Zhou Lu, Alan Joly, Zheming Wang, and **Hong-fei Wang***. **J. Chem. Phys.**, 135, 241102, 2011.

Resolving Two Closely Overlapping -CN Vibrations and Structure in the Langmuir Monolayer of the Long-Chain Nonadecanenitrile by Polarization Sum Frequency Generation Vibrational Spectroscopy, Zhen Zhang, Yuan Guo, Zhou Lu, Luis Velarde and **Hongfei Wang***, **J. Phys. Chem. C**, 116, 2976-2987, 2012.