

Biographical Sketches: Yasutomo J. Uemura

Address: Department of Physics Rm. 1310, Columbia University,
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Phone: 212-854-8370 (office); 212-854-3379 (fax); 646-457-2636 (mobile); 212-932-1898 (home)
E-mail: yu2@columbia.edu Born 1953

Education: B. Sc. in Physics, Univ. of Tokyo, 1977. M. Sc. in Physics, Univ. of Tokyo, 1979
D. Sc. in Physics, Univ. of Tokyo, 1982 [supervisor: Prof. Toshimitsu Yamazaki]
Thesis Title M. Sc. Spin Relaxation of Positive Muon in ZrH₂ and MnO
D. Sc. Dynamical Properties of Spin Glasses Studied by Muon Spin Relaxation

Employment: Jan. 1994 - currently Professor, Physics Dept., Columbia Univ.
July 1988 - Dec. 1993 Associate Professor, Physics Dept., Columbia Univ.
Feb. 1985 - June 1988 Associate Physicist, Brookhaven National Lab.
Feb. 1983 - Feb. 1985 J.S.P.S. Special Oversea Fellow (BNL)
Apr. 1982 - Feb. 1983 J.S.P.S. Post Doc Fellow (Univ. of Tokyo)

Visiting Positions: Sep. 2017 – Jan. 2018 Alliance Visiting Professor, Ecole Polytechnique

Awards: Jan. 1985, Inoue Science Foundation, Award for distinguished D. Sc. Thesis
Oct. 1989, David and Lucile Packard Foundation, The Packard Fellowship
Oct. 1999, Fellow, American Physical Society
Aug. 2005, Yamazaki Prize, International Society for MuSR Spectroscopy
June 2017, Fibonacci Prize, Superstripes Conference, Italy

Experience: Muon Spin Relaxation (μ SR) and Neutron Scattering Experiments

Research: Magnetism: Frustrated and/or Low-dimensional spin systems, Itinerant-electron ferromagnets,
Mott transition systems, Diluted ferromagnetic semiconductors
Superconductivity: high-T_c cuprates, fullerides, ruthenates, organic, heavy-fermion systems

Publication/Presentation: 335 papers during 1978-2023, including 5 Nature, 1 Nature Physics,
3 Nature Materials, 7 Nature Communications, 2 Science Advances, 2 PNAS, 43 Phys. Rev. Lett., 1 Phys.
Rev. X., 84 Phys. Rev. B, 3 Phys. Rev. Materials; 10 articles published as book chapters.

Total citation 14,673; H-index 59

160 conference invited talks, including 8 M2S-HTSC, 4 LT, 3 ICM, and 4 μ SR Conferences, LT-16, -19,
-23, -26; ICM-88, -06, -15; M2S-HTSC-II, -III, -V, -VI, -RIO, -06, -12, -18; μ SR-II, -'93, -'96, -'05

Selected recent papers published in 2016-23 [a-e];

(The 10 most significant papers since 1978 are shown in a separate one-page sheet.)

[a] Y.J. Uemura, [Dynamic superconductivity responses in photoexcited optical conductivity and Nernst effect](#), Phys. Rev. Materials **3**, 104801 (2019).

[b] Benjamin A. Frandsen, Lian Liu, Sky C. Cheung, Zurab Guguchia, Rustem Khasanov, Elvezio Morenzoni, Timothy J. S. Munsie, Alannah M. Hallas, Murray N. Wilson, Yipeng Cai, Graeme M. Luke, Bijuan Chen, Wenmin Li, Changqing Jin, Cui Ding, Shengli Guo, Fanlong Ning, Takashi U. Ito, Wararu Higemoto, Simon J.L. Billinge, Shoya Sakamoto, At-sushi Fujimori, Taito Murakami, Hiroshi Kageyama, Jose Antonio Alonso, Gabriel Kotliar, Masatoshi Imada, Yasutomo J. Uemura, [Volume-wise destruction of the antiferromagnetic Mott insulating state through quantum tuning](#), Nature Communications, **7** (2016) 12519.

[c] Qi Sheng, Tatsuya Kaneko, Kohtaro Yamakawa, Zurab Guguchia, Zizhou Gong, Guoqiang Zhao, Guangyang Dai, Changqing Jin, Shengli Guo, Licheng Fu, Yilun Gu, Fanlong Ning, Yipeng Cai, Kenji M. Kojima, James Beare, Graeme M. Luke, Shigeki Miyasaka, Masato Matsuura, Shin-ichi Shamoto, Takashi Ito, Wataru Higemoto, Andrea Gauzzi, Yannik Klein, and Yasutomo J. Uemura, [Two-step Mott transition in Ni\(S,Se\)₂: \$\mu\$ SR studies and charge-spin percolation model](#), Phys. Rev. Research **4**, 033172 (2022)

[d] Tatsuo Goko, Carlos J. Arguello, Andreas Hamann, Thomas Wolf, Minhya Lee, Dmitry Reznik, Alexander Maisuradze, Rustem Khasanov, Elvezio Morenzoni, Yasutomo J. Uemura, [Restoration of quantum critical behavior by disorder in pressure-tuned \(Mn,Fe\)Si](#), npj Quantum Materials **2**, 44 (2017).

[e] Z. Guguchia, A. Kerelsky, D. Edelberg, S. Banerjee, F. von Rohr, D. Scullion, M. Augustin, M. Scully, D. A. Rhodes, Z. Shermadini, H. Luetkens, A. Shengelaya, C. Baines, E. Morenzoni, A. Amato, J. C. Hone, R. Khasanov, S. J. L. Billinge, E. Santos, A. N. Pasupathy, Y. J. Uemura, [Magnetism in semiconducting molybdenum dichalcogenides](#), Science Advances **4**, 3672 (2018).

Synergistic activities.

1. Have promoted extensive international collaboration; Supported / supervised graduate students from US, Japan, China, Spain, Rumania, Israel, Russia, Colombia

2. Led an NSF PIRE (Partnership for International Research and Education) project on International consortium for probing novel superconductors with neutrons, muons, photons and STM, joined by leading researchers, August 2010 – July 2015.

3. Initiated Frontiers of Condensed Matter (FCMP) Lecture Course in 2011, organized FCMP Workshops in Beijing (2014), Vancouver (2015) and Tokai/Tokyo (2017), and archived more than 350 FCMP Lectures given by leading CMP researchers. Organized FCMP Lectures at Columbia U Global Center in Paris and Ecole Polytechnique in Palaiseau in Fall 2017.

4. Served as a co-organizer of several Superstripes and Superfluctuation Conferences held in Rome Frascati, Camerino, Padva of Italy during 2018-2023

Graduate advisor: Prof. T. Yamazaki (U. Tokyo); Post-doc advisor: Dr. G. Shirane, BNL

Thesis advising. Former Ph.D. Students: Carlos Arguello [Colombia] (Columbia), Jeremy Carlo [US] (NRC-Canada; Villanova U), Yasunori Fudamoto [Japan] (industry), Ioana Gat-Malureanu [Romania] (SUNY Maritime College), Amit Keren [Israel] (U. Paris-Sud; Technion), Kenji Kojima [Japan] (Columbia U.; U. Tokyo; KEK), Mike Larkin [US] (Columbia U.; Industry), Lian-Ping Le [PRC] (LANL; Deutche Bank), Ben Nachumi [US] (NIST, Georgetown U.), Peter Russo [US] (TRIUMF/UBC; Morgan Stanley), Andrei Savici [Romania] (ORNL), Ben Sternlieb [US] (BNL; Sun Microsystems), Oleg Tchernyshyov [Russia] (IAS; Princeton U.; Johns Hopkins U.), Wei-dong Wu [PRC] (Deutche Bank). Lian Liu [China] (Data Management), Ben Frandsen [US] (UC Berkeley), Sky Cheung [US] (Johnson & Johnson), Zizhou Gong [China] (Research and Development, San Jose), Guoqiang Zhao [China] (IOP Beijing / Columbia), Qi Sheng [China]

Postdoctoral Advisees: Graeme M. Luke [Canada] (89-91); Kenji M. Kojima [Japan] (96-98); Michel I. Larkin [US] (98-00); Toshimitsu Ito [Japan] (99-02); Atsuko Fukaya [Japan] (00-02); Ioana Gat-Malureanu [Romania] (03-05); Christopher Wiebe [Canada] (03-04); Tatsuo Goko [Japan] (07-13); Fanlong Ning [China] (10 - 12); Rafael Fernandes [Brazil]; (11-12); Zurab Guguchia [Georgia](17- 19) Guoqiang Zhao [China] (20 -); Yipeng Cai [China] (23 -)

Total number advised/sponsored: 21 graduate students and 13 post-doctoral scholars.

Seminars and Colloquia presented at

UC Berkeley, UCSB, UCLA, UCSD, U. Penn, Princeton, Stanford, Columbia, Cornell, MIT, Ohio St., U. Conn., SUNY Stony Brook, U. Indiana, Rutgers, Rockefeller U., ANL, U. Illinois Urbana-Champaign, U. Colorado Boulder, U. Oregon Eugene, UBC, MacMaster, BNL, AT&T, Cambridge, U. Paris Sud (Orsay), CEN Saclay, CNRS Grenoble, U. Darmstadt, ICMC Madrid, ETH Zurich, U. Zurich, Tokyo U., ISSP, Kyoto U., Kyoto U. Chem. Inst., Osaka U., Tsukuba U., RIKEN, ECL-Japan, Tohoku U., IMR Tohoku U., Kyushu U., OIST Okinawa, NTT Atsugi Lab., Free Univ. Berlin, FSU/NHMFL JAERI/JAEA, PSI, TU Munich, U. Rome, U. Barcelona, Tsinghua U., Beijing IOP, CBPF Rio de Janeiro, Columbia U Global Center Paris, Ecole Polytechnique, U. Pierre and Marie Curie Paris, China Spallation Neutron Source (CSNS)