Curriculum Vitae

Thomas I. Banks

UT Southwestern
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Medical physics positions

Asst Professor, Clinical Physics, UT Southwestern Radiation Oncology	2018–present
Clinical Physicist, Stanford University Radiation Oncology	2018

Medical physics training, certifications, & licensing

License	Therapeutic Medical Physics, Texas Medical Board	2019
Cert.	Therapeutic Medical Physics, American Board of Radiology (DABR)	2019
Resid.	Therapeutic Medical Physics, Stanford University School of Medicine	2018
Cert.	Medical Physics, University of Victoria	2016

Education

Ph.D.	University of California, Berkeley, Physics	2007
M.A.	University of California, Berkeley, Physics	2001
A.B.	Cornell University, Physics, *magna cum laude*	1999

Research

Medical physics residency (Stanford University School of Medicine)

- Bimodality imaging of primary cervical tumors before and during concurrent chemoradiotherapy (clinical study) — 2017 – 2018

Postdoctoral (UC Berkeley/LBNL)

- KamLAND-Zen — Experimental search for neutrinoless double-beta decay of ^{136}Xe using the KamLAND detector in Japan — 2007 – 2015
- CUORE — Experimental search for neutrinoless double-beta decay of ^{130}Te using cryogenic bolometers at the underground Gran Sasso National Laboratory (LNGS), Italy — 2009 – 2015
- KamLAND — Experiment studying neutrino oscillations and geoneutrinos using an underground liquid-scintillator detector in Japan — 2007 – 2015

Doctoral (UC Berkeley)

- MuCap — Precision measurement of the rate of the weak process of nuclear muon capture by the proton at the Paul Scherrer Institute (PSI), CH — 2001 – 2007

Undergraduate (Cornell University)

- NSF Research Experience for Undergraduates Program — 1998

Teaching

Faculty Co-Instructor, UT Southwestern 2019
RT 3314–Medical Dosimetry & Treatment Planning I
RT 4315–Medical Dosimetry & Treatment Planning II
RT 5212–Emerging Technology in Radiation Therapy

Laboratory Teaching Assistant, University of Victoria Fall 2015
Physics 102—General Physics

Head Graduate Student Instructor, UC Berkeley Spring 2001
Physics 8B—E&M, Optics, and Modern Physics for Non-Majors

Graduate Student Instructor, UC Berkeley Fall 2000
Physics 141A—Introduction to Solid-State Physics

Graduate Student Instructor, UC Berkeley Fall 1999
Physics 7A—Classical Mechanics for Scientists and Engineers

Honors and awards

APS Dissertation Award in Nuclear Physics 2009
Outstanding Graduate Student Instructor Award for Physics, UC Berkeley 2001
Kieval Prize in Physics, Cornell University 1999
Phi Beta Kappa Honor Society 1999

Peer-reviewed publications [• = primary author]

- Banks, T.I., et al., "Pilot study of combined FDG-PET and dynamic contrast-enhanced CT of locally advanced cervical carcinoma before and during concurrent chemoradiotherapy suggests association between changes in tumor blood volume and treatment response," Cancer Med. 2018;7:3642–365.
- ◦ Alduino, C., et al. (CUORE Collaboration), "First Results from CUORE: A Search for Lepton Number Violation via $0\nu\beta\beta$ Decay of ^{130}Te," Phys. Rev. Lett. **120**, 132501 (2018). (arXiv:1710.07988v3 [nucl-ex])
- ◦ Alduino, C., et al. (CUORE Collaboration), "Measurement of the two-neutrino double-beta decay half-life of ^{130}Te with the CUORE-0 experiment," Eur. Phys. J. **C77**, 1 (2017). (arXiv:1609.01666 [nucl-ex])
- ◦ Gando, A., et al. (KamLAND-Zen Collaboration), "Search for Majorana Neutrinos near the Inverted Mass Hierarchy Region with KamLAND-Zen," Phys. Rev. Lett. **117**, 082503 (2016). ([arXiv:1605.02889 [hep-ex])
- Alduino, C., et al. (CUORE Collaboration), "Analysis techniques for the evaluation of the neutrinoless double-β decay lifetime in ^{130}Te with the CUORE-0 detector," Phys. Rev. **C93**, 045503 (2016). (arXiv:1601.01334 [nucl-ex])
- Alfonso, K., et al. (CUORE Collaboration), "Search for Neutrinoless Double-Beta Decay of ^{130}Te with CUORE-0," Phys. Rev. Lett. **115**, 102502 (2015). (arXiv:1504.02454 [nucl-ex])
- Artusa, D.R., et al. (CUORE Collaboration), "Searching for neutrinoless double-beta decay of ^{130}Te with CUORE," Advances in High Energy Physics, Vol. 2015, 879871 (2015). (arXiv:1402.6072 [physics.ins-det])
- Banks, T.I., et al., "A compact ultra-clean system for deploying radioactive sources inside the KamLAND detector," Nucl. Instrum. Meth. **A769**, 88–96 (2015). (arXiv:1407.0413 [physics.ins-det])

- Egger, J., et al., "A high-pressure hydrogen time projection chamber for the MuCap experiment," Eur. Phys. J. **A50**, 163 (2014). (arXiv:1405.2853 [physics.ins-det])
  - Artusa, D.R., et al. (CUORE Collaboration), "Exploring neutrinoless double beta decay in the inverted neutrino hierarchy with bolometric detectors," Eur. Phys. J. **C74**, 3096 (2014). (arXiv:1404.4469 [nucl-ex])
  - Gando, A., et al. (KamLAND Collaboration), "Reactor On-Off Antineutrino Measurement with KamLAND," Phys. Rev. **D88**, 033001 (2013). ([arXiv:1303.4667 [hep-ex])
- Gando, A. et al. (KamLAND-Zen Collaboration), "Limit on Neutrinoless $\beta\beta$ Decay of Xe-136 from the First Phase of KamLAND-Zen and Comparison with the Positive Claim in Ge-76," Phys. Rev. Lett. **110**, 062502 (2013). ([arXiv:1211.3863 [hep-ex])
  - Alessandria, F., et al. "Validation of techniques to mitigate copper surface contamination in CUORE," Astropart. Phys. **45**, 13 (2013). (arXiv:1210.1107 [nucl-ex])
- Andreev, V.A., et al. (MuCap Collaboration), "Measurement of Muon Capture on the Proton to 1% Precision and Determination of the Pseudoscalar Coupling g_P," Phys. Rev. Lett. **110**, 012504 (2013). (arXiv:1210.6545 [nucl-ex])
  - Gando, A., et al. (KamLAND-Zen Collaboration), "Limits on Majoron-emitting double-beta decays of Xe-136 in the KamLAND-Zen experiment," Phys. Rev. **C86**, 021601 (2012). (arXiv:1205.6372 [hep-ex])
  - Gando, A., et al. (KamLAND-Zen Collaboration), "Measurement of the double-β decay half-life of ^{136}Xe with the KamLAND-Zen experiment," Phys. Rev. **C85**, 045504 (2012). (arXiv:1201.4664v2 [hep-ex])
  - Alessandria, F., et al. (CUORE Collaboration), "CUORE crystal validation runs: Results on radioactive contamination and extrapolation to CUORE background," Astr. Phys. **35**, 839–849 (2012). (arXiv:1108.4757v2 [nucl-ex])
  - Gando, A., et al. (KamLAND Collaboration), "Search For Extraterrestrial Antineutrino Sources with the KamLAND Detector," ApJ **745**, 193 (2012). (arXiv:1009.4771 [hep-ex])
  - Abe, S., et al. (KamLAND Collaboration), "Measurement of the ^{8}B Solar Neutrino Flux with the KamLAND Liquid Scintillator Detector," Phys. Rev. **C84**, 035804 (2011). (arXiv:1106.0861v2 [hep-ex])
  - Gando, A., et al. (KamLAND Collaboration), "Partial radiogenic heat model for Earth revealed by geoneutrino measurements," Nature Geoscience **4**, 647–651 (2011). (arXiv:1009.4771 [hep-ex])
- Gando, A., et al. (KamLAND Collaboration), "Constraints on θ_{13} from a Three-Flavor Oscillation Analysis of Reactor Antineutrinos at KamLAND," Phys. Rev. **D83**, 052002 (2011). (arXiv:1009.4771 [hep-ex])

- Abe, S., et al. (KamLAND Collaboration), "Production of Radioactive Isotopes through Cosmic Muon Spallation in KamLAND," Phys. Rev. **C81**, 025807 (2010). (arXiv:0907.0066 [hep-ex])
- Ganzha, V.A., et al., "A circulating hydrogen ultra-high purification system for the MuCap experiment," Nucl. Instrum. Meth. **A578**, 485–497 (2007). (arXiv:0705.1473 [nucl-ex])
- Chitwood, D.B., et al. (MuLan Collaboration), "Improved Measurement of the Positive-Muon Lifetime and Determination of the Fermi Constant," Phys. Rev. Lett. **99**, 032001 (2007). (arXiv:0704.1981 [hep-ex])
- Andreev, V.A., et al. (MuCap Collaboration), "Measurement of the Muon Capture Rate in Hydrogen Gas and Determination of the Proton's Pseudoscalar Coupling g_P," Phys. Rev. Lett. **99**, 032002 (2007). (arXiv:0704.2072 [nucl-ex])

Conference presentations and invited talks

- LBNL Research Progress Meeting, LBNL, CA — Apr 2015
  " Results from the search for $0\nu\beta\beta$ decay of ^{130}Te with CUORE-0"
- UCSB KITP neutrino conference, Santa Barbara, CA — Nov 2014
  "CUORE-0 performance, and prospects for CUORE"
- EPS HEP 2013 Conference, Stockholm, Sweden — Jul 2013
  "Status of the CUORE program in neutrinoless double-beta decay"
- 24$^{\text{th}}$ Rencontres de Blois in Particle Physics and Cosmology, Blois, France — May 2012
  "The CUORE neutrinoless double beta decay experiment"
- Roma Sapienza University, Rome, Italy — Apr 2012
  Seminar: "Recent first results from the KamLAND-Zen experiment"
- CENPA, University of Washington, Seattle, WA — Dec 2011
  Seminar: "The CUORE neutrinoless double beta decay experiment"
- DBD11 Int'l Workshop on Double Beta Decay and Neutrinos, Osaka, Japan — Nov 2011
  "The CUORE neutrinoless double beta decay experiment"
- Nikhef, Amsterdam, The Netherlands — Jul 2011
  Seminar: "The CUORE neutrinoless double beta decay experiment"
- ICATPP Conference, Como, Italy — Oct 2010
  "The Cuoricino & CUORE Neutrinoless Double Beta Decay Experiments"
- Paul Scherrer Institut (PSI), Villigen, Switzerland — Jul 2010
  Seminar: "Revealing Neutrinos"
- Sonoma State University, Sonoma, CA — Oct 2009
  Colloquium: "The Rich Physics of Muon Capture"
- APS April Meeting, Denver, CO — May 2009
  2009 APS Dissertation Award in Nuclear Physics presentation:
  "An Introduction to the MuCap Experiment"

- Kellogg Radiation Lab, Caltech, Pasadena, CA — Oct 2007
  Seminar: "The MuCap experiment: A measurement of the rate of muon capture by the proton"
- NuFact07 Conference, Okayama, Japan — Aug 2007
  "First results from the MuLan and MuCap experiments"
- VII Latin American Symposium in Nuclear Physics and Applications, Cusco, Peru. "The MuCap experiment: A measurement of the rate of muon capture by the proton" — Jun 2007
- APS April Meeting, Jacksonville, FL — Apr 2007
  "Analysis of Systematic Errors in the MuCap Experiment"