

Brandon R. Brown, Ph.D.
Physics Professor and Writer

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Education:

- 1998: Post-doctoral Certificate in Science Communication, University of California, Santa Cruz.
1997: Ph.D. in Solid State Physics, Oregon State University.
1992: BA in Physics, Rice University.

Employment:

- 2013-2020: Professor and Sometimes Chair of Physics and Astronomy, USF.
One stint as Chair of Council of Science Chairs.
- 2010-2013: Professor of Physics and Astronomy, USF
Director of External Affairs, Arts and Sciences
- 2008-2010: Associate Professor of Physics and Astronomy, USF
Director of External Affairs, Arts and Sciences.
- 2004-2008: Associate Dean for Sciences
Associate Professor of Physics, USF.
- 1998-2004: Assistant Professor of Physics, USF.
- 1997-1998: Content expert, Archipelago Productions, Monterey, CA.

Leadership Highlights at the University of San Francisco:

- Chair of all Science Chairs and Co-chair of the College Council for Arts and Sciences. Ran regular meetings of science chairs and handled interfacing to the administration on behalf of science faculty. Ran every other College Council meeting, of all chairs from Arts and Sciences, and helped handle communication between this group of faculty and several facets of USF's administration (2018-2019).
- Led initial programming and academic planning for new science building. Led science faculty in all planning, architectural and lab/classroom meetings discussions, and successfully advocated for the project to become the University's top capital priority (2004-2008).
- In conjunction with Development, played central role in fundraising initial \$42M for new science building, including prospect discovery, in-person cultivation and solicitation, site tours, authorship of grants, copious public speaking, authorship of fundraising materials, *et cetera*. (2005-2013). New Center opened August of 2013.

- As Associate Dean for Sciences, represented and managed seven science departments, with issues ranging from curricula, faculty hiring, mentoring, course staffing, and interfacing with all other administrative units on behalf of science faculty. Supervised 11 full-time staff and 65 full-time faculty.
- Representative to USF's Faculty Union during protracted collective bargaining session, helped run elections that led to peaceful transition of power within the union, and became an unscheduled department chair and chair of all science chairs (2016-2018).

Communications and Fundraising Highlights at the University of San Francisco:

- Served as a leading external and internal voice of the Science Building Project, working closely with Trustees, student groups, science faculty, neighborhood associations, VP of Development, University Communications, Facilities, Gift Officers, Corporate and Foundation Relations, Information Technology Services, *et cetera*.
- Lead academic on private foundation efforts for 8 awards totalling \$8.5M, including primary proposal writing, leading site visits, and handling grant reporting.
- Managed portfolio of 80 high-capacity donors and prospects.
- Lead writer of fundraising brochures, website content, e-communications, and traditional mailings related to science building campaign.
- Wrote proposals, directed funds, and handled all reporting for six Congressionally directed grants totalling \$4M for the new science building.
- Advocated for and directed quality animation to assist all communication efforts, as well as launching the meet the USF scientist PR video series.

Other Service Highlights at the University of San Francisco:

- Chair of Council of Science Chairs, COSEC (2018-2019).
- Presidential Search: Faculty Representative, Trustee Search Advisory Committee (2013-2014).
- USF Faculty Association, elected Policy Board science representative (2015-2018).
- Member of the University Task Force on Student and Graduate Employment (2013-2015).
- Faculty representative to the Strategic Enrollment Taskforce in Admissions (2006-2008).
- Member of WASC re-accreditation task force and subsequent steering committee, drafting the university's self-study and preparing for both the Fall 2007 WASC site visit and the university's 2008 full proposal.
- Chair of Faculty Development Committee, (2004-2008), overseeing distribution of \$500,000 per annum for faculty research. Implemented first digital application system.

Highlights of Awards and Honors:

- Writer in Residence, Kavli Institute for Theoretical Physics (2020).
- Distinguished Lecturer at the William J. Clinton School for Public Service (2019).
- Housatonic Award for Nonfiction, recognizing *Planck* (2016).
- Faculty Distinguished Research Award, USF (2010 & 2016).
- *Planck* 2016 PROSE Award, runner-up, in Popular Science and Mathematics.
- *Planck* listed as “Best History Book, 2015” by The Times of London.
- Frank Beach Award for Outstanding Leadership in Service, USF (2012).
- Arthur Furst Award, recognizing distinguished research for the betterment of humankind (2004).

Selected Media Appearances:

- *Scientific American, Discover Magazine, Physics Today, History Today, Nature, Science News, The Times of London, et alia*, reviewed and recommended the biography of Max Planck (2015).
- *Cool Science Radio*. Interview concerning the biography of Max Planck (June, 2015).
- "Perfect Predators." Work and interview included in shark sense documentary for both the *Discovery* channel and *Animal Planet* for “shark week.” (August, 2007).
- *National Public Radio*. Interviewed on “All Things Considered,” concerning our research (2003).
- *BBC radio*. Interviewed on “Science in Action,” concerning our research (2003).
- *Duetschlandfunk(German Public Radio)*. Interviewed by Dagmar Röhrlich, concerning our research (2003).
- *New York Times, Scientific American, Boston Globe, Financial Times, Xinhua News Agency (China), Agence France-Presse (Paris), et alia*. Short pieces concerning our biophysics research (2003).

Teaching and Speaking:

- 1998-2020, University of San Francisco – Roughly 68 lecture and laboratory sections covering 15 different courses within the Physics Department, for majors, non-majors, and non-scientists, as well a writing course within Rhetoric and Composition. Aggregate SUMMA average for "overall I rate this instructor a good teacher": 4.7 out of 5.0. Voted unanimously “superior” in promotion of 2010, and in tenure and promotion, 2004.
- 1998-2020 – dozens of invited talks, colloquia and readings spanning superconductivity, the sensory biophysics of sharks, the life and work of Max Planck, the impact of University of San Francisco science programs, and NASA’s Apollo missions.

Highlights of Publications for Non-scientific Audiences:

- "What Called Them to Physics?" *Scientific American* (April, 2020).
- "Celebrating the Engineers Behind the First Moon Landing," *Scientific American* (July, 2019).
- "Apollo Engineers Discuss What It Took to Land on the Moon," *Smithsonian* (July, 2019).
- "How Apollo 11 Easily Could have Failed," *New York Daily News* (July, 2019).
- *The Apollo Chronicles: Engineering America's First Moon Missions* (Oxford: New York, 2019).
- *Planck: Driven by Vision, Broken by War* (Oxford: New York, 2015).
- "Genius Move: Max Planck showed us how to Change our Minds," *Slate* magazine, (June, 2015).
- "The Rescue of Max Planck," *Scientific American* guest blog, (May, 2015).
- "The Letter Diary of Max Planck," *Poor Yorick* journal, (December, 2014).
- "The Extra Pounds You Can't Afford to Lose," *The Huffington Post*, (7/6/2012).
- "Why did a Good Scientist Do a Bad Thing?" *The Huffington Post*, (3/13/2012).
- "Rebuild the House of Science," *SEED Magazine*, 2006 Science Policy Essay grand prize winner. (November, 2006).

Selected Research Publications:

- "Temperature Sensitivity in Electrosensors and Thermal Voltages in Electrolytes." B. R. Brown, *J. Biol. Physics* **36**, 121-134 (2010).
- "Corrigendum: Sensing Temperature without Ion Channels." B. R. Brown, *Nature* **454**, 246 (2008).
- "From Morphology to Neural Information: the Electric Sense of the Skate," M. Camperi, T. Tricas, B. R. Brown, , *PLoS, Computational Biology* **3**, 1083-1096 (2007).
- "Infrastructure in the Electric Sense: Admittance Data from Shark Hydrogels." B. R. Brown, M. E. Hughes, and C. Russo, *Journal of Comparative Physiology A*, **191**, 115-123 (2005).
- "Thermoelectricity in a Polymer Hydrogel." B. R. Brown, M. E. Hughes, and C. Russo, *Physical Review E*, **70**, 031917 (2004).
- "Sensing Temperature without Ion Channels." B. R. Brown, *Nature* **421**, 495 (2003).
- "Extracellular signal fluctuations in shark electrosensors," B. R. Brown. M.E. Hughes, J. C. Hutchison, in *Fluct. & Noise in Biological, Biophys., and Biomed. Systems*. SPIE Se 5110, (2003).
- "Modelling an Electrosensory Landscape: Behavioral and Morphological Optimization in Elasmobranch Prey Capture." B. R. Brown, *Journal of Exp. Biology* **205**, 999-1007 (2002).
- "Electrical Characterization of Gel Collected from Shark Electrosensors." B. R. Brown, J. C. Hutchison, M. E. Hughes, R. W. Murray, and D. R. Kellogg, *Phys. Rev. E* **65**, 061903 (2002).
- Assorted publications on vortex phase transitions in high-temperature superconductors, (1994-2001).

Grant Awards:

- *Fletcher Jones Foundation*. "The Advanced Instrument Corridor." PI. \$300,000 (2009).
- *DOE Congressional grant*. PI, "The University of San Francisco Paper Study, Science Building" \$479,000 (2006-2008).
- *HUD Congressional grant*. PI, "Integrated Science Center." \$397,000 (2008-2011).
- *William Randolph Hearst Foundation*. Co-author. "Construction of the Integrated Science Center." \$150,000 (2007).
- *NASA Congressional grant*. PI, "USF Center for Sci. and the Environment." \$920,000 (2005-2009).
- *NASA Congressional grant*. PI, "Lab. Equip. for Science Center Upgrades." \$928,000 (2006-2009).
- *FIPSE Congressional grant*. PI, "Equipment for Harney Science Center." \$570,400 (2005-2007).
- *Koret Foundation*. Proposal editor and budget narrative author. \$1,000,000 (2006).
- *Herbst Foundation*. Proposal co-author. "The Herbst Mathematics Classroom." \$250,000 (2006).
- *Wayne and Gladys Valley Foundation*. Co-author with S. Dalton, D. Macmillan, et al., "Challenge grant – USF's Integrated Science Center." \$5,000,000 (2006-2012).
- *Fletcher Jones Foundation*. "The Fletcher Jones Laboratory, a naming grant for the Center for Science and Innovation." Co-author with L. Margerum and S. Dalton. \$500,000 (2005).
- *DOE Congressional earmark*. PI, "USF Integrated Science Center." \$497,000 (2005-2008).
- *DARPA*. Co-PI with PI Tricas (U. Hawaii) and co-PI Camperi. "Neurosensory Control of Locomotor Movements in Free-Swimming Sharks." \$500,000 (2004-2006).
- *National Science Foundation*. Major Research Instrumentation grant, Division of Chemistry. Co-PI with PI Margerum and co-PI Curtis. \$40,000 (2002-2005).
- *Fletcher Jones Foundation*. For "Materials Physics" initiative. Lead author. \$790,000 (2000-2008).
- *National Science Foundation*. Course Curriculum and Laboratory Improvement grant, Division of Undergraduate Education. PI with co-PI Holliday. \$80,000 (2001-2003).

References:

Available upon request, spanning multiple levels and branches of my current university ecosystem.