Jennifer Anne Burney

Curriculum Vitae

University of California, San Diego
School of International Relations and Pacific Studies
9500 Gilman Drive
La Jolla, CA 92093-0519

Phone: 415.509.3497 (c)
-- or -- 858.534.4149 (o)
Email: jburney@ucsd.edu
Web: http://www.jaburney.net/

Research Interests

Science, technology, and policy for food security, poverty alleviation, climate change mitigation, and adaptation: climate impacts on agriculture; energy poverty and energy services for poverty alleviation; environmental impacts of food production and consumption.

Education

Ph.D., Physics, Stanford University (January 2007)
Areas of Focus: Detector Physics, Astrophysics Instrumentation and Observation

A.B., History and Science, Harvard College (June 1999)
Areas of Focus: Physics and Modern American History

Professional Experience

Assistant Professor of Science, Technology, Engineering and Policy (July 2012 - Present)
School of International Relations and Pacific Studies, University of California, San Diego

UC President's Postdoctoral Fellow (October 2010 - June 2012)
Scripps Institution of Oceanography, University of California, San Diego

Affiliated Fellow (October 2010 - Present)
Postdoctoral Researcher (January 2008 - September 2010)
Center on Food Security and the Environment; Environmental Earth System Science Department, Stanford University

Project Coordinator (February - December 2007)
Solar Electric Light Fund, Kalalé, Benin

Graduate Student Researcher (Spring 2001 - Fall 2006)
Physics Department, Stanford University

Peer-Reviewed Publications

J. Burney, S. Postel, R. Naylor, "The Case for Smallholder Irrigation as a Development Priority in sub-Saharan Africa," *Proceedings of the National Academy of Sciences*, published online before print July 22, 2013, doi:10.1073/pnas.1203597110.

A. Kar, I. H. Rehman, J. Burney, P. S. Praveen, R. Suresh, L. Singh, V. K. Singh, T. Ahmed, N. Ramanathan, V. Ramanathan, "Real-time assessment of Black Carbon pollution in Indian households due to traditional and improved biomass cookstoves," *Environmental Science & Technology*, Volume 46:5 (2012).

J. Burney & R. Naylor, "Smallholder Irrigation as Poverty Alleviation Tool in Sub-Saharan Africa," *World Development*, Volume 40:1, p.110-123 (2012).

J. Burney, S. Davis, D. Lobell, "Greenhouse Gas Mitigation by Agricultural Intensification," *Proceedings of the National Academy of Sciences*, Volume 107:26, p. 12052-12057 (2010).

J. Burney, L. Woltering, M. Burke, R. Naylor, D. Pasternak. "Solar-powered drip irrigation enhances food security in the Sudano-Sahel," *Proceedings of the National Academy of Sciences*, Volume 107:5, p. 1848-1853 (2010).

J. Burney, T.J. Bay, J. Barral, P.L. Brink, B. Cabrera, J.P. Castle, A.J. Miller, S.W. Nam, D. Rosenberg, R.W. Romani, A. Tomada. "Transition-edge sensor arrays for UV-optical-IR astrophysics," *Nuclear Instruments and Methods in Physics Research Section A*, Volume 559, p. 525-527 (2006).

T.J. Bay, J. Burney, J. Barral, P.L. Brink, B. Cabrera, J.P. Castle, A.J. Miller, S.W. Nam, R.W. Romani, A. Tomada. "The optical imaging TES detector array: Considerations for a cryogenic imaging instrument," *Nuclear Instruments and Methods in Physics Research Section A*, Volume 559, p. 506-508 (2006).

J. Burney, T.J. Bay, P. Brink, B. Cabrera, P. Castle, R. Romani, A. Tomada, S. Nam, A. Miller, J. Martinis, E. Wang, T. Kenny, B. Young. "Development and Characterization of a TES Optical Imaging Array for Astrophysics Applications," *Nuclear Instruments and Methods in Physics Research Section A*, Volume 520, p. 533-536 (2004).

Other published work

J. Burney, C. Kennel, D. Victor, "Getting serious about the new realities of global climate change," *Bulletin of the Atomic Scientists*, 69:4 (2013).

R.W. Romani, T.J. Bay, J. Burney, B. Cabrera. "Transition-Edge Cameras for Fast Optical Spectrophotometry," in *High Time Resolution Astrophysics*, D. Phelan, O. Ryan, A. Shearer (eds.). Astrophysics and Space Science Library, Vol. 351 (2008).

Bay, T.J., J. Burney, P.L. Brink, B. Cabrera, J.P. Castle, R.W. Romani, A. Tomada, B.A. Young, S. Nam, A.J. Miller, J. Martinis, T.W. Kenny, E. Wang, "Development of superconducting transition edge sensors for time- and energy-resolved single-photon counters with application to imaging astronomy," *Materials for Infrared Detectors III*. Edited by Longshore, Randolph E.; Sivananthan, Sivalingam. Proceedings of the SPIE, Volume 5209, pp. 192-200 (2003).

R.W. Romani, J. Burney, P. Brink, B. Cabrera, P. Castle, T. Kenny, E. Wang, B. Young, A.J. Miller, S.W. Nam. "UV-IR Science Prospects with TES Imaging Arrays" in *Hubble's Science Legacy: Future Optical-Ultraviolet Astronomy from Space*, K.R. Sembach, J.C. Blades, G.D. Illingworth, R.C. Kennicutt, Jr. (eds.). ASP Conference Series, Vol. 291 (2003).

Fellowships, Grants, Awards

2011: National Geographic / Blackstone Ranch Institute Innovation Challenge Grant recipient (PI)
2011: National Geographic Emerging Explorer
2010: University of California President's Postdoctoral Fellowship recipient
2007: Woods Institute for the Environment Environmental Ventures Program grant recipient
2006: Joseph R. McMicking Fellow, Stanford Physics Department
2003 - 2006: NASA Graduate Student Research Program Fellowship
1999: Hoopes Prize for "Outstanding Senior Thesis" (Harvard College)
1999: Rothschild Prize for "Best Written Thesis" (Harvard History of Science Department)
1999: Phi Beta Kappa (Harvard College)
1998: Ernest Coleman Award for Scholarship and Citizenship (Stanford Linear Accelerator Center)

Teaching Experience

School of International Relations and Pacific Studies, UCSD (2012-2013):
Quantitative Methods II (Introductory Econometrics)
Food Security
Environmental Policy Capstone Course (co-led)

Stanford University:
Guest Lecturer, Civil and Environmental Engineering Department (2009-2010)
Guest Lecturer, Environmental Earth System Science Department (2009-2010)
Course Coordinator, Civil and Environmental Engineering Department (March 2004 - March 2006)
Teaching Assistant, Physics Department, Stanford University (2000 - 2003)

Invited Talks

UCSD Osher Lifelong Learning Institute, Invited Distinguished Speaker (11/2011)
Stanford University Connecting the Dots, Invited Lecturer (04/2011)
Oregon State University Food For Thought Lecture Series, Invited Lecture (02/2011)
UCSD Nanoengineering Seminar, Invited talk (01/2011)
"Greenhouse gas mitigation by agricultural intensification," Cargill Invited Webinar (09/2010)
"Greenhouse gas mitigation by agricultural intensification," C-AGG Invited Webinar (09/2010)
Toward Sustainable Groundwater in Agriculture, San Francisco, CA, Invited talk (06/2010)
Institutions, Behavior, and the Escape from Persistent Poverty, Cornell, NY, Invited talk (11/2009)
San Jose State Engineering 100W Lecture, San Jose, CA (10/2008)
Engineers for a Sustainable World National Conference, Invited Talk (02/2008)
Santa Clara University Physics Department Colloquium, Santa Clara CA (11/2004)

University Service

Chancellor's Advisory Committee on Gender Identity and Sexual Orientation Issues (January 2012 - present)
IR/PS Infrastructure Committee (January 2012 - present)
Reviewer for UC President's Postdoctoral Fellowship Program Applications (2012-2013)

Service to the Profession

Engineering for Change (E4C) Appropriate Solutions Evaluation Program Steering Committee
Reviewer for *Global Environmental Change, Agricultural Systems, Agricultural Water Management, Energy and Environmental Science, Pest Management Science, Agriculture Ecosystems & Environment*

Other Skills

Near-fluent French and Spanish, conversational Hebrew.
Construction, carpentry, and machining experience.
Programming: C/C++, Python, Matlab, R, Stata
Solar Energy International (SEI) Advanced PV Certificate

Professional Membership

American Geophysical Union
American Physical Society