Raymond JEANLOZ 307 McCone Hall, University of California, Berkeley, CA 94720-4767
Tel.: 510-642-2639; FAX 510-643-9980; e-mail: jeanloz@berkeley.edu

EDUCATION and POSITIONS HELD

B.A., Amherst College, 1975; Ph.D. (Geology, Geophysics), California Institute of Technology, 1979
Assistant Professor, **Harvard University**, 1979-81
Member, Materials Research Laboratory and Center for Earth & Planetary Physics, **Harvard University**, 1979-81
Assistant-Associate Professor, **University of California, Berkeley**, 1982-85
Professor of Earth and Planetary Science, **University of California, Berkeley**, 1985- ; Astronomy, 1998-
Executive Director, **Miller Institute for Basic Research in Science**, UC Berkeley, 1998-03; Senior Fellow, 2011-
Annenberg Distinguished Visiting Fellow, **Hoover Institution**, Stanford University, 2010, 2012-

AWARDS, HONORS

Sloan Foundation Fellow (physics), 1981-85; Presidential Young Investigator Award, **National Science Foundation**, 1984; Macelwane Award, **American Geophysical Union**, 1984; Sherman Fairchild Distinguished Scholar, **California Institute of Technology**, 1988; MSA Award, **Mineralogical Society of America**, 1988; **J. D. and C. T. MacArthur Foundation** Prize Fellowship, 1988; First Francis Birch Lecture, **American Geophysical Union**, 1988; Eyring Distinguished Lecturer in Chemistry, **Arizona State University**, 1989; Hudnall Lecturer, **University of Chicago**, 1990; Abelson Lecture, **Carnegie Institution of Washington**, 1994; University Guest Professor, **Jilin University**, and **Academica Sinica**, Inst. Geophysics, Beijing, 1994; Emilio Segré Distinguished Lectures in Physics, **Tel Aviv University**, 1995; Crafoord Symposium Lecture, **Royal Swedish Academy of Sciences**, 1998; National Associate, **National Academies**, 2001; Highly Cited Researcher, **Institute for Scientific Information**, 2002; J. Tuzo Wilson Lecture, **University of Toronto**, 2002; University Guest Professor, **Harbin Institute of Technology**, 2005; ZGC Forum, **Chinese Academy of Sciences** and **Chinese Physical Society**, 2005; William Smith Lecture, **The Geological Society** (London), 2005; **American Institute of Physics** 75th Anniversary Speaker, 2006; Hans Bethe Award, **Federation of American Scientists**, 2008; Cozzarelli Prize, **National Academy of Sciences**, 2009; Leo Szilard Award, **American Physical Society**, 2009; Capital Science Lecture, **Carnegie Institution of Washington**, 2010; Keynote Lecture, **CTBTO**, Vienna, 2011; Keynote Lecture, **Gordon Conference on Research at High Pressures**, 2012.

Fellow: American Academy of Arts and Sciences; American Association for the Advancement of Science; American Geophysical Union; American Physical Society; Mineralogical Society of America. **Member:** National Academy of Sciences.

PROFESSIONAL EXPERIENCE (Partial Listing; current activities underlined**)**

Advisor, **American Scientist**, 1993-01; **National Geographic**, 1995- ; **Physics Today**, 1996-

American Geophysical Union Tectonophysics Program Chair, 1983; *J. Geophysical Research* Associate Editor, 1983-86; Mineral & Rock Physics Committee, 1983-88, 1998-02 (Chair, 1998-00); *Rev. Geophysics* Committee, 1987 (Chair), 1990; Lehmann Medal Committee (Chair), 1996-97; Bowie Medal Committee, 2000-02.

American Physical Society, Shock Compression Fellows and Science Award Committees, 2002-04.

Annual Review of Earth and Planetary Sciences Editorial Committee, 1987-91; Editor, 1996- ; AR Editorial Affairs Committee, 2013-

Deep Springs College, Board of Trustees, 1995-03; Secretary of the Corporation, 1996-01.

Department of Energy, Basic Energy Sciences Earth Science Advisory Council, 1997-04; Subcritical Experiment Evaluation Committee (Chair), 1998-99; Senior Advisor to the Under-Secretary, 1999-2000; National Nuclear Security Administration Advisory Committee (Defense Programs Lead), 2001-03; Senior Advisor to the Secretary, 2009, 2010.

ExxonMobil Research and Engineering Corporation, Advisor, 2003-04.

International Association of Seismology and Physics of the Earth's Interior (IASPEI) Executive Committee, 1995-2000.

JASON, member (Steering Committee, 1998-03).

Lawrence Livermore National Security, LLC, and Los Alamos National Security, LLC, Science and Technology Committee, 2007-

NASA Planetary Geology & Geophysics Management Operations Working Group, 1987-94 (Chair, 1989-91); Solid Earth and Natural Hazards Program Steering Committee, 2000-03.

National Academy of Sciences, National Research Council Physics and Chemistry of Earth Materials Committee, 1986-88; Steering Committee, Solid-Earth Sciences: A Critical Assessment, 1988-93; Board on Earth Sciences and Resources, 1997-02 (Chair, 1999-02); Basic Research Opportunities in Earth Sciences Committee, 1998-00; Committee on Technical Issues Related to Ratification of the CTBT, 2000-02; Committee on International Security and Arms Control, 2002- (Chair, 2005-); Committee on Effects of a Nuclear Earth-Penetrator Weapon, 2004; Search Committee for S&T Adviser to the Secretary of State, 2006-07; Committee to Review and Update Technical Issues Related to Ratification of the CTB*T*, 2009-11; Committee on Management of the NNSA Laboratories, 2011-13.

National Science Foundation Earth Sciences Proposal Review Panel, 1987-91; Earth Sci. Presidential Young Investigator Panel, 1988; Continental Dynamics Review Panel, 1988-91; Graduate Research Fellowship Panel, 1997-99; Geosciences Directorate Advisory Committee, 2005-07 (EAR Sub-committee Chair, 2005-07; IF Program Committee of Visitors Chair, 2007).

Physical Review Letters Divisional Associate Editor (*ad hoc*), 1993-

Department of State, Secretary of State's International Security Advisory Board, 2011-

UK Research Excellence Framework (REF2014) International member, 2012-

University of California UCB Committee on Academic Policy & Resource Allocation, 1996-98; UC National Security Panel, 1998-07; LLNL Nonproliferation, Arms Control, International Security Advisory Committee, 2000-07; LLNL Director Screening Committee, 2002, 2006; UCB Biological Sciences Dean Search (Chair), 2002; UC President's Council, 2002-07; UCB Committee on Committees, 2007-09; UCB Research Cabinet, 2009- ; UCB Astrophysics Council, 2010- ; LANL LDRD Program Review (Chair), 2011.

SELECTED RECENT PUBLICATIONS

Godwal, B. K., Speziale, S., Clark, S. M., Yan, J., and Jeanloz, R., 2010, High pressure equation of state studies using methanol-ethanol-water and argon as pressure media, *J. Phys. Chem. Solids*, **71**, 1059-1062.

Yan, J., Knight, J., Kunz, M., Raju, S. V., Chen, B., Gleason, A. E., Godwal, B. K., Geballe, Z., Jeanloz, R., and Clark, S. M., 2010, The resistive-heating characterization of laser heating system and LaB6 characterization of X-ray diffraction of beamline 12.2.2 at the Advanced Light Source, *J. Phys. Chem. Solids*, **71**, 1179-1182.

Godwal, B. K., Speziale, S., Voltolini, M., Wenk, R., and Jeanloz, R., 2010, Postcotunnite phase of the intermetallic compound $AuIn_2$, *Phys. Rev. B*, **82**, 064112.

Smith, H. P., and Jeanloz, R., 2010, Britain leads the way to global zero, *Arms Control Today*, **40**, 15-18.

Gleason, A. E., Marquardt, H., Chen, B., Speziale, S., Wu, J., and Jeanloz, R., 2011, Anomalous sound velocities in MgO under non-hydrostatic compression, *Geophys. Res. Lett.*, **38**, 10.1029/2010GL045860.

Raju, S. V., Zaug, J. M., Chen, B., Yan, J. Y., Knight, J. W., Jeanloz, R., and Clark, S. M. 2011, Determination of the variation of the fluorescence line positions of ruby, strontium tetraborate, alexandrite, and samarium-doped yttrium aluminum garnet with pressure and temperature, *J. Appl. Phys.*, **110**, 023521.

Marquardt, H., Gleason, A., Marquardt, K., Speziale, S., Miyagi, L., Neusser, G., Wenk, H. R., and Jeanloz, R., 2011, Elastic properties of MgO nanocrystals and grain boundaries at high pressures by Brillouin scattering, *Phys. Rev. B*, **84**, 064131.

Arielly, R., Xu, W. M., Greenberg, E., Rozenberg, G. Kh., Pasternak, M. P., Garbarino, G., Clark, S., and Jeanloz, R., 2011, Intriguing sequence of $GaFeO_3$ structures and electronic states to 70 GPa, *Phys. Rev. B*, **84**, 094109.

Drell, S. D., and Jeanloz, R., 2011, Nuclear deterrence in a world without nuclear weapons, in *Deterrence, Its Past and Future* (G. P. Shultz, S. D. Drell and J. E. Goodby, eds.), Hoover Institution Press, Stanford, CA, pp. 99-129.

Jeanloz, R., and Godwal, B. K., 2012, Deriving equations of state from non-hydrostatic data, *J. Phys. Conf. Series*, **377**, 012032.

Godwal, B. K., Raju, S. V., Geballe, Z., and Jeanloz, R., 2012, Electronic phase transitions in cadmium at high pressures, *J. Phys. Conf. Series*, **377**, 012033.

Spaulding, D. K., McWilliams, R. S., Jeanloz, R., Eggert, J. H., Celliers, P. M., Hicks, D. G., Collins, G. W., and Smith, R. F., 2012, Evidence for a phase transition in silicate melt at extreme pressure and temperature conditions, *Phys. Rev. Lett.*, **108**, 065701.

Millot, M., Geballe, Z. M., Yu, K. M., Walukiewicz, W., and Jeanloz, R., 2012, Red-green luminescence in indium gallium nitride alloys investigated by high pressure spectroscopy, *Appl. Phys. Lett.*, **100**, 162103.

Godwal, B. K., Yan, J., Clark, S. M., and Jeanloz, R., 2012, High-pressure behavior of osmium: An analog for iron in Earth's core, *J. Appl. Phys.*, **111**, 112608.

Jeanloz, R., 2012, Long-range effects of nuclear disasters, in *The Nuclear Enterprise* (G. P. Shultz, S. D. Drell and J. E. Goodby, eds.), Hoover Press, Stanford, CA, pp. 107-126.

Geballe, Z., and Jeanloz, R., 2012, Origin of temperature plateaus in laser-heated diamond anvil cell experiments, *J. Appl. Phys.*, **111**, 123518.

Loubeyre, P., Brygoo, S., Eggert, J., Celliers, P. M., Spaulding, D. K., Rygg, J. R., Boehly, T. R., Collins, G. W., and Jeanloz, R., 2012, Extended data set for the equation of state of warm dense hydrogen isotopes, *Phys. Rev. B*, **86**, 144115.

McWilliams, R. S., Spaulding, D. K., Eggert, J. H., Celliers, P. M., Hicks, D. G., Smith, R. F., Collins, G. W., and Jeanloz, R., 2012, Phase transformations and metallization of magnesium oxide at high pressure and temperature, *Science*, **338**, 1330-1333.

Jeanloz, R., Fung, I., Bowyer, T. W., and Wofsy, S. C., 2013, Beyond arms-control monitoring, *Science*, **339**, 761-762.

Godwal, B. K., Stackhouse, S., Yan, J., Speziale, S., Militzer, B., and Jeanloz, R., 2013, Codetermination of crystal structures at high pressure: Combined application of theory and experiment to the intermetallic compound AuGa2, *Phys. Rev. B*, **87**, 100101.

Wang, J., Smith, R. F., Eggert, J. H., Braun, D. G., Boehly, T. R., Patterson, J. R., Celliers, P. M., Jeanloz, R., Collins, G. W. Duffy, T. S., 2013, Ramp compression of iron to 273 GPa, *J. Appl. Phys.*, **114**, 023513.

Geballe, Z. M., Raju, S. V., Godwal, B. K., and Jeanloz, R., 2013, Clapeyron slope reversal in the melting curve of AuGa2 at 5.5 GPa, *J. Phys.-Condensed Matter*, **25**, 415401.

Jeanloz, R., and Stone, H. A., 2014, JASON review of Enhanced Geothermal Systems, *Proc. 39th Workshop Geothermal Reservoir Engineering*, Stanford, CA, SGP-TR-202.

Geballe, Z. M., and Jeanloz, R., 2014, Solid phases of FeSi to 47 GPa and 2800 K: New data, *Am. Mineral.*, **99**, 720-723.

Smith, R. F., Eggert, J. H., Jeanloz, R., Duffy, T. S., Braun, D. G., Patterson, J. R., Rudd, R. E., Biener, J., Lazicki, A. E., Hamza, A. V., Wang, J., Braun, T., Benedict, L. X., Celliers, P. M., and Collins, G. W., 2014, Ramp compression of diamond to 5 TPa: Experiments taking carbon to the Thomas-Fermi-Dirac regime, *Nature*, **511**, 330-333.