Chairman

Edward M. Stolper, Ph.D.

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In the Division of Geological and planetary sciences, faculty members study the earth and planets in order to understand their origin, constitution, and development, and the effect of the resulting physical and chemical environments on the history of life, and on man. The approach to these problems is made with strong reliance on the basic sciences. programs of study and research are pursued in geology, geobiology, geochemistry, geophysics, and planetary science. The curriculum is flexible so that students with degrees in biology, chemistry, engineering, or physics may carry out graduate work within the division. Interdisciplinary studies are encouraged and students may carry out academic and research programs within and between different divisions.

Assistantships, scholarships, rellowships

Each year the Division awards a number of graduate teaching and research assistantships. In 1998-99, they provide stipends of up to \$17.088 annually. The holder of such an appointment also receives a tuition scholarship and is permitted to carry a full academic program.

Also available are a number of fellowships that require no departmental duties. These provide tuition, an initial academic-year stipend of up to \$15,900 (plus supplemental assistance to raise the amount to the graduate assistant level). Special fellowships such as the Beno Gutenberg Fellowship, awarded to an outstanding first-year student in geophysics, provide a stipend of \$17,088 in addition to tuition.

Aims and scope of graduate studies

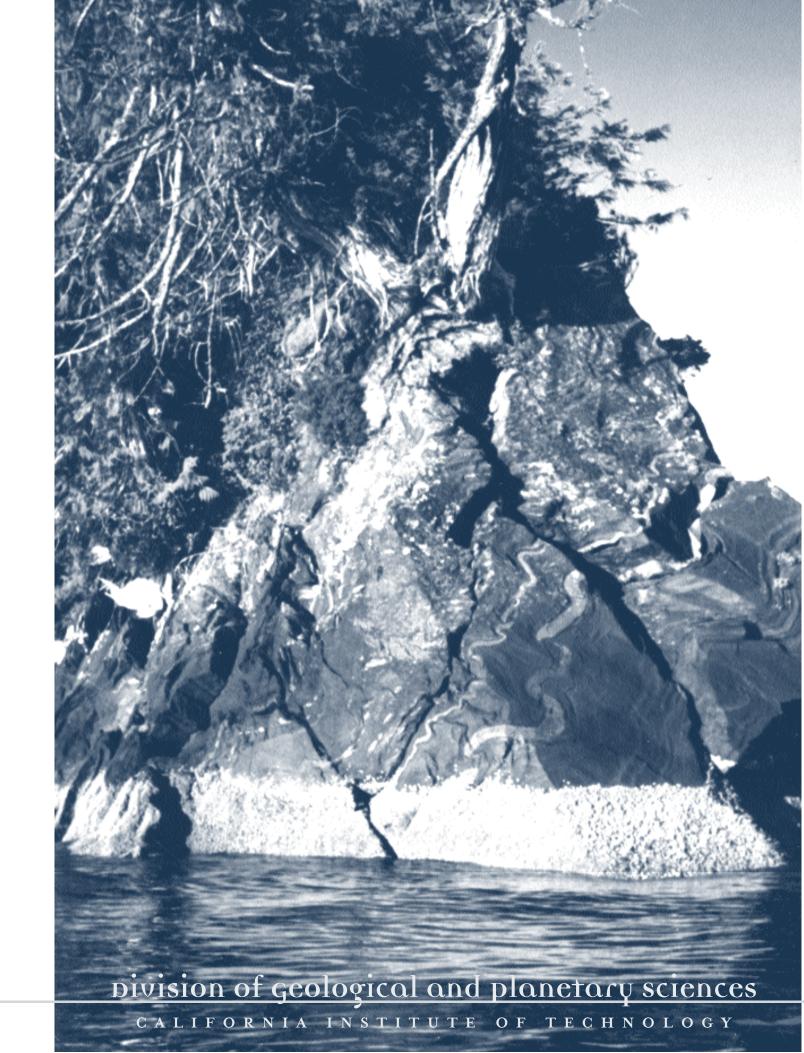
Graduate students in the Division of Geological and Planetary
Sciences enter with very diverse undergraduate preparation -majors in astronomy, biology, chemistry, mathematics, and
physics, as well as in geochemistry, geology, and geophysics.
Graduate study and research within the division are equally
diverse, and the graduate program aims to provide for
students a depth of competence and experience in their
major field, sufficient strength in the basic sciences to
allow them to continue self-education after their
formal training has been completed, and the
motivation and training to keep them in the
forefront of their field through a long and
productive career.

Applying for Admission

Complete applications for admission and financial aid should be received before January 15. Applicants will be notified of the results before April 1. Applicants are required to submit Graduate Record Examination (GRE) scores for the aptitude tests and the advanced test in their field of undergraduate specialty. Applicants from non-English-speaking nations are required to submit Test of English as a Foreign Language (TOEFL) scores. Applications are available from the Dean of Graduate Studies, M.C 02-31, California Institute of Technology, Pasadena, CA 91125, or from the Institute Graduate Admissions home page

The California Institute of Technology is committed to the concept of equal educational opportunity for all. Individuals are considered for admission to student status, and all services, facilities, programs, and activities are administered in a nondiscriminatory manner without regard to (a) race, religion, color, sex, sexual orientation, parental or family marital status, national or ethnic origin or nondisqualifying disability; or (b) any other factor which is, in fact, irrelevant to student status or to the rendering of services, facilities, programs, or activities. In addition, the many Federal and State laws, and regulations issued thereunder, which bar discrimination in educational programs and related activities, are also applicable.

www.gps.caltech.edu



mack simons

Assistant Professor of Geophysics Ph.D., MT. 1995. Theoretical and observational geodynamics, especially cau stal deformation and mantle convection radar interie io metry; gravity field analysis; modelling of mage data with complex

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<u>місhael с. gurnis</u>

Professor of Geophysics; Ph.D., Aust a like Net lored University, 1987. By names of the Earth's interior using computational methods. Relation between mantie dynamic sand the geological evolutions

aurnis



Thomas H. Heaton



Professor of Engineering Seismokey: e mp hasis on wave-form mp de ling, strongen motions, and earthquake-source pily sics.

Don L. Anderson

Beangrand John R. McMillan Professor of Geophysics; Ph.D., Caltech, 1962. Interpretation of deep Earth seismic data, including torrography, to derive models for the dla@gps.caltech.edu composition, physical state and evolution of the Earth's interior; derivation of global geodynamic models. Synthesis of geochemical, geophysical and geodynamic data; interactions o filthosphere and



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Craftord Laureate and John D. MacArthur Professor of Geology and Geophysics; Ph.D., Chicago, 1954 App lication of chemic al physics to problems in the origin and evolution of the earth and the solar system and the study of radioactive dating and time scales for the transport of isotopes in nautral waters



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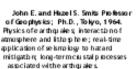


Associate Professor of Geochemistry; Ph. D., University of California, San Diego (Stripps Institution of Oceanog suphy), 1991 Rate gas composition of terrestrial materials, chemicalevolution of the earth's mantle and almosphere, petrogenesis of oceanic lavas, low

temperature the moch prometry, geologic record of interplanetary dust flux

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Professor of Geophysics; Ph.D.

Stanford, 1981. Reflection seismob gy

numeric al wave simulation, tomographic

econstauctions, inverse methods, tectoni

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negative birs, the study of preserved

solar system and of the evolution of

nucleosynthetic components in the early

primitive meteorites and protop lanets.

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niversity of California, Berleley,

evolution of solar system, meteorite and

lunar sample analyses and laboratory

1963. Problems of nucleosynthesis.

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an the sise operiments.

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Geochemistry; Ph.D., Caltech, 1970 Mass spectrometry of positive and

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<u> Hermann Engelhardt</u>

Associate in Geophysics; Ph.D., Technical University of

structure and physical properties of ice;

dynamics of glaciers and large ice streams, climatic change affecting the

flow; ice in the planetary systems

coring borehole geophysics.

to twater to re to be dritting and ice

Munich, 1964. Experimental

WestAntarctic for streams mechanisms of fastice streaming

physics; physics of ice; glacklogy;

Professor of Geophysics and Director of the Seismologica I Laboratory; Ph. D., University of

Galifornia, San Diego, 1967. Seismic

upperearth, as determined by Pand S

core-mande boundary.

wave propagation and fine structures of the

wave inversion; particularly interested in mappinguitra-low-velocity zone so fithe

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Thomas J. Ahrens

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Professor of Geology; Ph.D., Stanford, 1977. Necessoris s

paleoseismology of the San Andreas.

applic at bins, post-ear thiquake field

and other faults and subduction zones.

seismit hazard assessmens sorengineering

rwestigations, active silicic volcanism

of North America and Asia:

W.M. Keck Professor of Geophysics; Ph.D., RPI, 1962. Origin, differentiation and evolution of the Earth and planets. Laboratory and p acecraft-based measure ments of the physical properties of plane tary materials. Impact processes on plane tary surfaces



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Professor of Mine a bey

properties of minerals, which involve

meital ion site occupancy, trace water, radiation effects, and X-ray amorp hous

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Ph. D., Galtech, 1971.

<u>kerry E. sieh</u>

Robert P. Sharp-Professor of Geology;

petrology of granisic basto liths, on his lite

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Ph.D., Caltech. 1959. Oxygen and hydrogen isosope groc termistry and

complexes, and other igneous and

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Associate Professor of Geology and Geophysics; Ph.D. MIT. 1988. Place sectonics marine grophysic at studies of plate boundary evolution, size is and deformation in the lithosphere; stuctural geob grand tectonics, sempte sensing and voic anic hazards.

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Seismo tectorics; state of stress in the

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Professor of Geology; Ph.D., Harvard, 1957. Retrologic, minerategic, and microprobe investigations, remote sensing of planetary surfaces; Project Scientist for Wars Global Surveyor Wission.

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William E. Leonhard Professor of Geology; 626.395.6504 Ph.D., Harvard, 1979: Retrology of ems@expet.caltech.edu meseoritic, lunar, and serie strial igneous rocks; physic at and chemica i properties

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peter J. wyllie

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<u>вассіаў катр</u>

Barbara and Stanley R. Rawn, Jr., Professor of Geology and Geophysics; Ph.D., Caltech, 1956. Mechanics of glacier flow, withemphasison basal sliding. surging and streaming flow in the Antarctic ice sheet; structures produced by rock flow and fracture in the earth.

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Professor of Geology; Ph. D., University of Galifornia, Santa Banbara, 1975. Tec to nic and acochronologic at studies in orogenic terranes of western North America, emphasising the paleo seo graphic development and margins.



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Professor of Goology; Ph.D., MIT, 1982. Structural geology and tectonics, with emphasison fieldobservation.

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Assistant Professor of Planetary Astronomy; Ph. D., University of

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astronomy, specifically stude sof the

ou ter solar system and its relationship

<u>michael E. Brown</u>

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<u>geoffrey A. Blake</u>



Professor of Cosmoche mistry and Planetary Science; Ph.D., Caltech, 1986. Observational analyses of stellar and plane tasy genesis, in situ characterization of the Earth's atmosphere and biogeochemical cycles; tase r spectroscopic and ab initio characterization of weakly bended clusters and reactive

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astrophysics and planetary physics.

and Planetary Physics; Ph.D., Cornell,

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<u>andrew p. Ingersoll</u>



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<u>paul o. wennberg</u> Associate Professo ro f Atmospheri

Chemistry and Environmental Erg incerting Science; Ph.D., Harvard, 1994. Laboratory and field studies probing the processes controlling to be by the mistry, dynamics. and radiation in the Earth's atmosphere; spectascopy and kinetics; aircraft-borne and ground-based instrument development.

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Professor of Planetary Science; Ph.D., Harvard, 1994. Atmospheric chemistry and radiation, planetary atmospheres, evolution of atmospheres, global change





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