Gregory P. Laughlin

More Information

Teaching

Students

Books

Background and Research Interests

Gregory Laughlin received a PhD in Astronomy and Astrophysics from UC Santa Cruz in 1994. He held an NSF/JSPS Fellowship in Tokyo, and also did postdoctoral research at the University of Michigan and the University of California, Berkeley. From 1999-2001, he worked for NASA as a Planetary Scientist at the Ames Research Center in Mountain View, CA. He joined the UCSC faculty in 2001. In 2004, he was recipient of an NSF CAREER award, and was promoted to Full Professor in 2007.

Laughlin's research interests focus on numerical simulations and modeling of data. Current areas of interest include:

Detection and Characterization of Extrasolar Planets

Over 300 extrasolar planets have been discovered in orbit around stars in our local galactic neighborhood, and more planets are being discovered every month. Laughlin is a Co-I on the Lick Carnegie Exoplanet Survey, and along with team members Steve Vogt, Paul Butler, Eugenio Rivera and Stefano Meschiari, is using the Keck, Magellan and AAT telescopes to discover and characterize planets with the Doppler radial velocity technique. The Lick-Carnegie Survey encourages public participation through the Systemic and Transitsearch projects, both of which are organized and led by Laughlin. In order to communicate the latest news on the detection and characterization of extrasolar planets, he writes a frequently updated web log at oklo.org.

Hydrodynamical Simulations

Laughlin is currently working on several problems that employ hydrodynamical simulations. With UCSC graduate student Jonathan Langton, he is studying the surface flows on strongly irradiated extrasolar planets, and is comparing the results of these simulations to observations made with the Spitzer Space Telescope. With UCSC graduate student Stefano Meschiari, he is studying the growth and saturation of spiral instabilities in self-gravitating disks. These instabilities are a key mechanism for eliciting the transport of angular momentum through nascent planetary systems, and are very important to an overall understanding of planet formation.

The Extremely Distant Future

The long-term fate of the Earth, the Solar System, the Galaxy, and the Universe is an area that can be meaningfully explored using our current understanding of physics. Laughlin, in frequent collaboration with Fred Adams of the University of Michigan, has been active in this field for over a decade.