

Daniel T. Jaffe

Institution: Department of Astronomy, University of Texas at Austin, Austin, TX 78712
(512) 471-3425

Education: Harvard University, Department of Astronomy; M.S. 1978, Ph.D. 1981
Harvard College; B.A. Magna Cum Laude 1975

Positions: 2011-2015 Chair, Department of Astronomy, UT Austin
2000-11 Associate Chair, Department of Astronomy, UT Austin
1997- Professor, Department of Astronomy, UT Austin
1992-97 Associate Professor, Department of Astronomy, UT Austin
1986-92 Assistant Professor, Department of Astronomy, UT Austin
1982-86 Assistant Res. Physicist, Space Sciences Laboratory, U.C. Berkeley
1980-82 Enrico Fermi Fellow, Enrico Fermi Institute, University of Chicago

Service: IRAM Science Advisory Committee (to 2014)
(current Gemini Board (from 2014)
and recent) NASA-IRTF iSHELL, HET HZPF, Gemini GHOST Instrument Reviews

Awards: David and Lucile Packard Foundation Fellow 1989-94
Alexander von Humboldt Stiftung Fellow 1993
Bart and Priscilla Bok Prize, Harvard University 1986
DAAD Fellow 1975

Astronomical Research Interests: Dan Jaffe works on the formation of stars and planetary systems and on the effects of stellar radiation on the dense interstellar medium using infrared spectroscopy. In recent years, his primary focus has been on using infrared spectroscopy to gain an understanding of young stellar objects across the mass spectrum. For massive stars, the work includes velocity-resolved maps of Ultracompact HII regions to understand the UCHII region lifetime problem. His work on solar mass stars involves studies of stellar properties to try to understand the evolution of protoplanetary disks themselves. He also uses spectroscopy to study the nature of young, very low mass brown dwarfs. Jaffe has also participated in teams studying the physics of protoplanetary disks and using radial velocity techniques to search for planets around very young stars.

Instrumentation: In the first half of his career, Jaffe worked on incoherent and heterodyne instrumentation for submillimeter astronomy. At Texas, he developed the first 800 GHz system for the CSO and devised an optical system that permitted large-scale submillimeter mapping in unused daytime hours. For more than a decade, Jaffe worked with PI John Lacy to develop high-resolution spectrographs for the mid-IR, TEXES, and EXES. He now serves as PI for a high resolution near-IR spectrometer (IGRINS, now in service on the McDonald 2.7m telescope) and for a 1-5 micron high resolution spectrometer for the Giant Magellan Telescope. As a result of his grating work, he is also a member of the science teams for the FORCAST grism facility, for NIRCcam on JWST, and for iSHELL on the NASA-IRTF.

Technology Development: Jaffe develops novel diffractive devices for infrared spectroscopy using adaptations of nanolithographic techniques. His group has fabricated and delivered mid-IR grisms (transmission gratings) for the FORCAST instrument on SOFIA, near-IR grisms for the NIRCam instrument on JWST, and a near-IR immersion gratings for IGRINS as well as for the ISHELL spectrograph on the NASA IRTF. The group is currently producing gratings for the planned spectrograph for the Giant Magellan telescope while continuing to develop new production techniques for space astronomy and earth science applications.