

Prof. Bryan E. Penprase

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Abstract:

Prof. Penprase conducts research on the most luminous sources of radiation in the universe: quasars, supernovae, gamma ray bursts, and merging neutron stars, in the context of his collaboration with astrophysicists at Caltech and worldwide on the "Zwicky Transient Facility" or ZTF. He will also give an overview of these cosmic explosions, and the technologies on earth and space used to discover and characterize these transient events. With the discovery of gravitational waves from LIGO and an emerging global telescope network, opportunities exist for entirely new types of astronomy and he will explain this new dynamic type of astrophysics that allows astronomers to "chase" these cosmic explosions before they fade away, and what new types of astrophysics they are revealing. The research on such transients has discovered new types of supernovae, new gamma-ray bursts, and gravitational lensing sources. With a global network of telescopes known as GROWTH the time-evolution of the "explosions" is revealing new information about the astrophysics of compact objects, the formation of the elements, and the last moments of stars as they collapse. The new ZTF facility is opening in summer of 2017, and the talk will review some of the capabilities of ZTF and the latest research ongoing with the GROWTH network, and plans for the new research with ZTF.

Biosketch:

Dr. Bryan Penprase is Dean of Faculty for the undergraduate program at Soka University of America, where he works to advance the innovative undergraduate liberal arts curriculum and to develop and expand the Soka University faculty as it develops a new program in Science. He previously was a Professor of Science at Yale-NUS College, and for 20 years was the Frank P. Brackett Professor of Astronomy at Pomona College. Bryan received both a BS in Physics and an MS in Applied Physics from Stanford University in 1985, and a PhD from the University of Chicago in Astronomy and Astrophysics in 1992. Bryan's research includes nearly all aspects of observational astrophysics, from photometric observations of nearby asteroids to spectroscopic studies of element formation in the Early Universe, using telescopes such as the Hubble Space Telescope and the Keck Telescope in Hawaii. He is the author of "The Power of Stars – How Celestial Observations Have Shaped Civilization," published by Springer, Inc., and has authored or co-authored over 50 peer-reviewed articles, in the *Astrophysical Journal*, *Astronomical Journal*, and in *Nature* and *Science*. He has served on numerous NSF and NASA review panels, including the Hubble Space Telescope Time Allocation Committee and the NASA/Keck Time Allocation Committee, and has

participated in the external review of the Five College Astronomy Program. His most recent research program is a collaboration with Caltech to develop the Zwicky Transient Facility (ZTF) and a Global Relay of Observatories known as GROWTH for studying gamma ray bursts, new supernovae, and the electromagnetic counterparts of gravitational wave sources.