THURSDAY COLLOQUIUM

Department of Physics, Tsinghua University

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Title GAMMA-RAY BURSTS

Speaker Elena Pian

Astronomer at the INAF and Professor at Scuola Normale Superiore

Venue 清华大学理科楼郑裕彤讲堂

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Abstract: Forty years after their discovery and nearly 15 years after their localization and afterglow detection, Gamma-Ray Bursts (GRBs) are still top targets for observation from the local Universe to its edge (up to redshift 9), and represent a prime theoretical challenge. Their prompt gamma-ray emission outshines every other source in the sky in this band and their initial optical counterparts can be as bright as V = 5, i.e. many orders of magnitudes more luminous than a normal quasar. Their X-ray afterglows reveal the presence of complex engines, whose nature is still debated (black hole vs neutron star). The rapid panchromatic variability of GRBs and their afterglows engages astronomers in the organization of multiwavelength observing campaigns that include satellites and ground-based telescopes. I will review the state of the art of the observations and the problems that are still open.

Introduction to the Speaker

Elena Pian has graduated in Physics at Univ. of Bologna in 1990 and has obtained her PhD in Astrophysics at the International School for Advanced Studies (SISSA/ISAS, Trieste) in 1994. After a post-doctoral research period at the Space Telescope Science Institute (Baltimore, Maryland) in 1995-1997, she joined the research staff of the INAF Institute for Astrophysics and Space Science (Bologna, former CNR-ITESRE), as a member of the BeppoSAX/PDS hardware team. In June 2000, she became a Research Astronomer at INAF, Trieste Astronomical Observatory, and in December 2005 she was promoted to Associate Astronomer. Since May2009, she is also a Professor at the Scuola Normale Superiore, Pisa. Her research interests are focussed on high energy astrophysics, particularly Gamma-Ray Bursts (GRBs), Supernovae and Active Galactic Nuclei (AGN). She is involved, together with colleagues at many institutes around the world, in many programs for the analysis and interpretation of multiwavelength data of GRB afterglows and AGNs of blazar type, acquired with both satellites and ground-based telescopes. She is currently leading a program for INTEGRAL observations of blazars in outburst and an ESO VLT program for spectroscopy of Supernovae associated with low-redshift GRBs.