GRBs as probes: from the progenitors environment to the high redshift Universe

Como, May 16–20, 2011

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FOREWORD

Gamma-ray bursts (GRBs) are, for short intervals, the brightest sources in the Universe, illuminating and probing their lines of site in exquisite detail. Thus they offer the opportunity to unveil the host galaxy ambient medium and to explore the distant Universe with a level impossible to achieve with any other class of objects. Therefore, GRBs are probes of many different environments: they are probes of the very high redshift Universe, with connections to Population III sources and re-ionization, and they are probes of dense stellar regions in which they form (at least those connected to massive progenitors), allowing us to track the chemical evolution and dust evolution of the Universe. In addition, merger events are unique gravity wave, particle and neutrino probes. The goal of the conference is to review the current status of our knowledge on GRBs as probes and to discuss open issues and requirements for future experiments and instruments.

Along these lines the conference *GRBs as probes: from the progenitors environment to the high redshift Universe* (Probes11) was held in Como in May 2011. We greatly enjoyed hosting you in Como. Each session of the conference started with two deep reviews of the field. This helped to put in the right context all the following talks. In addition to normal session, two special sessions were dedicated to 'GRBs as probes of tidal disruption events: GRB110328/ Swift J164449.3+573451' and to 'The Christmas burst GRB 101225A'. These were highly interesting with debate-provoking talks.

Merate, December 2011

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