

Astrophysical Explosions

FROM ENGINE TO REMNANT

Poster Session: Oct. 24, 9:30 a.m.

Room: Grand Ballroom

Oral Session I: Oct. 24, 2:00 p.m.

Room: Governor's Square 14

Edo Berger (Carnegie)—Energetics of Cosmic Explosions Gamma-ray Bursts and Type Ibc Supernovae

J. Craig Wheeler (Texas)—Rotation and Magnetic Fields in Supernovae and Gamma-ray Bursts

Andrew MacFadyen (IAS)—Stellar Collapse and Explosion: Relativistic AMR Simulations

Adam Burrows (Arizona)—State-of-the-Art Multi-Dimensional Core-Collapse and Supernova Simulations

Chris Fryer (LANL)—Asymmetries in Stellar Collapse

Alexei Khokhlov (Chicago)—Supernova Explosions in Two and Three Dimensions

Oral Session II: Oct. 25, 9:30 a.m.

Room: Governor's Square 14

Una Hwang (GSFC)—The Explosion of Cassiopeia A

Roger Chevalier (Virginia)—Hydrodynamic Instabilities in Young Supernova Remnants

Mikhail Medvedev (Kansas)—Collisionless Shocks in Gamma-ray Bursts: from Speculations to Physics

Anatoly Spitkovsky (SLAC)—Shock Structure and Particle Acceleration in Ion-electron and Pair Plasmas

Brent Blue (LLNL)—Simulating Astrophysical Jets with Inertial Confinement Fusion Machines

Chris Thompson (CITA)—Photon-Rich, Relativistic Magnetofluids and Gamma-ray Bursts

Oral Session III: Oct. 25, 2:00 p.m.

Room: Governor's Square 14

Alex Filippenko (Berkeley)—Optical Observations of Core-Collapse Supernovae

Lifan Wang (LBL)—Spectropolarimetric Diagnostics of Thermonuclear Supernovae

Dmitri Uzdensky (Princeton)—Exploding Stars with Magnetic Towers

Maxim Lyutikov (UBC)—Dynamics and Dissipation in Magnetically Dominated Astrophysical Outflows

Edison Liang (Rice)—Sustained Particle Acceleration by Poynting Flux

Jonathan Granot (SLAC)—Probing the Magnetic Field of Gamma-ray Bursts through Polarization Measurements

APS/DPP Mini-Conference, October 24–25, 2005

Adam's Mark Hotel, Denver, Colorado, USA



The subject of astrophysical explosions encompasses the timely and exciting physics of supernovae (SN) and gamma-ray bursts (GRB)—the most powerful plasma accelerators in the universe. SN are the explosive end states of massive stars, and while they represent a subject of long-standing interest in astrophysics, there is a basic lack of understanding as to how the explosions are actually driven. While SN present their own puzzles, SN are ironically an emerging solution to a basic phenomenological mystery of GRB (cosmologically distant relativistic explosions that can emit 10^{51} ergs/sec in a handful of seconds): Recently, GRB have been observationally correlated with SN and it is now believed that certain types of SN are directly associated with GRB. The mini-conference will show how numerical, analytical, observational, and experimental tools are being used toward understanding SN, GRB, their remnants, and the physics behind their phenomenological association.

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APS Topical Group in Plasma Astrophysics (GPAP)

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www.pas.rochester.edu/~blackman/astroexp05.html