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Bethe Colloquium

Hans-Thomas Janka

(Max Planck Institute for Astrophysics, Garching)

Supernova Simulations in Three Dimensions: Models Confronting Observations

Recently the first self-consistent three-dimensional computer simulations of supernova explosions of massive stars have become possible and reveal new, stunning phenomena like a dipolar emission asymmetry of electron neutrinos and antineutrinos. They lend support to the viability of the neutrino-driven explosion mechanism in principle, although stars above ten solar masses are hard to explode and might suggest still missing physics. The violent hydrodynamical instabilities that facilitate the onset of the explosion lead to kicks and spins of the newly formed neutron stars and to supernova asymmetries whose observations can help to decipher the physics of the central engine.

Lecture Hall 1

Physikalisches Institut - Nussallee 12 - 53115 Bonn

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Bethe Center for Theoretical Physics
Physikalisches Institut
Universität Bonn
Nussallee 12
53115 Bonn

phone (+49) 228/73-34 32
fax (+49) 228/73-32 23