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Collapsing massive stars and their possible electromagnetic transients

Thursday 24 July 2025 14:40 (20 minutes)

I will present recent results of the CFT astrophysics group on the theoretical modeling of long Gamma Ray Bursts resulting from collapsars. We focus on the massive star collapse mechanisms as well as the jet breakout and its interactions with dynamically ejected envelope.
We also probe the crucial role of self-gravity and magnetic field play
in determining the newly formed black hole properties. Finally, the recently discovered long GRBs motivate us to study collapsars as the r-process production sites and ejecting radioactive materials from accretion disks to power collapsar kilnovae.

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