Contribution ID: **58** Type: **Keynote speech**

Relativistic MHD Simulations of Merging and Collapsing Stars

Thursday, 3 April 2025 09:40 (30 minutes)

Compact binary mergers and the collapse of massive stars can produce intense transients observable across high-energy wavelengths. Events such as gamma-ray bursts and kilonova emissions are often accompanied by gravitational wave detections, making them crucial sources for multi-messenger astrophysics. To explore these phenomena theoretically, state-of-the-art approaches like numerical relativity and GR magnetohydrodynamic simulations are used. In this talk, I will review the current progress in simulations of mergers and collapsars, and present recent findings from my team, achieved using Polish PL-Grid and European High-Performance Computing facilities.

Presenter: Prof. JANIUK, Agnieszka (Center for Theoretical Physics PAS)

Session Classification: S1