

## The Structure and Signals of Neutron Stars, from Birth to Death



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### **Models of radioactively powered transients from neutron star mergers**

Mergers of compact objects such as neutron stars or black holes are expected to be accompanied by a variety of outflows, including the material ejected dynamically or driven by neutrino emission from the central remnant and

accretion disk. The ejected debris from the merger undergoes rapid neutron capture process and produces a potentially observable infrared transient, similar to the one recently detected in the afterglow of GRB 130603B. We present the longterm hydrodynamical evolutions of the material expelled during the merger. Our simulations self-consistently include nuclear energy input from the decaying, freshly synthesized r-process nuclei. On the basis of these simulations, we predict the angle-dependent lightcurves of the expected transients and discuss their detectability.

**Author:** Dr KOROBKIN, Oleg (Stockholm University)