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General Relativistic Simulations of Magnetized Binary Neutron Stars BRUNO GIACOMAZZO, University of Maryland — Binary neutron stars are among the most important sources of gravitational waves which are expected to be detected by the current or next generation of gravitational wave detectors, such as LIGO and Virgo, and they are also thought to be at the origin of very important astrophysical phenomena, such as short gamma-ray bursts. I will report on some recent results obtained using the fully general relativistic magnetohydrodynamic code Whisky in simulating equal-mass binary neutron star systems during the last phases of inspiral, merger and collapse to black hole surrounded by a torus. I will in particular describe how magnetic fields can affect the gravitational wave signal emitted by these sources and their possible role in powering short gamma-ray bursts.

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