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Gamma-Ray Bursts in the Gravitational Wave Era[1]

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The observation of gravitational waves will open a new, unexplored window onto the Universe. Among the sources of gravitational wave transients, compact objects such as neutron stars (NSs) and black holes (BHs) will likely play the most important role. In this talk, I will discuss the expected gravitational wave signal in two important situations: when an NS or a BH is born during a core collapse supernova, and when two compact objects (either NS-NS or NS-BH) in a binary merge. These events are believed to be accompanied by a strong electromagnetic signature in gamma rays – a long Gamma-Ray Burst from the core collapse event, and a Short Gamma-Ray Burst from the binary merger. I will further discuss what we can learn from the complementary observations of the electromagnetic and the gravitational wave signals during these events.

[1]NSF