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Compact Binary Inspirals and Gravity Waves

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The evolution of compact astrophysical binaries during their closest approach—while fundamentally driven by gravity wave emission—-can be strongly influenced by a myriad of other physics. These physics include, but are not limited to, the effects of mass transfer, systematic losses of angular momentum, and tidal interactions between the two components. How these physics influence a binary's evolution directly impacts its gravity wave signal evolution, providing opportunities for gravity wave observations to contribute to our understanding of the relevant physics. Here I will discuss how some of these physics enter into compact binary evolution and how this impacts their gravity wave signal, focusing throughout on ways gravity wave observations may contribute to our understanding of these physics.