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Title:	Testing general relativity with gravitational waves using meta Inspiral-Merger-Ringdown Consistency Test
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Keywords:	Consistency test Inspiral-Merger-Ringdown
Issue Date:	May-2023
Publisher:	IISER Mohali
Abstract:	The thesis proposes a test of General Relativity (GR) using gravitational wave data and is applicable to any tests of compact binaries as different tests are sensitive to different aspects of general relativity. The meta inspiral- merger-ringdown consistency test (IMRCT) involves inferring final mass and final spin of the remnant black hole, obtained from the analyses from two different tests of GR, and then checking for their consistency. We check the performance of the meta IMRCT using a standard set of null tests that are used in analysis of GW signals. The three theory agnostic tests we consider are the original Inspiral-Merger-Ringdown Consistency Test (IMRCT), pa- rameterized phasing (two varieties), and modified dispersion test. meta IM- RCT is a generalization of original IMRCT and provides another test of GR. The method is applied to GR and non-GR signals and to quasi-circular and eccentric signals to illustrate the method's performance. Finally, the test is applied to the samples from the LIGO and Virgo Collaboration for various tests of GR applied to GW170817.
Description:	Embargo Period
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