

Dark Matter and Stars: Multi-Messenger Probes of Dark Matter and Modified Gravity

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New fields in the strong gravity regime

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Gravitational wave signals from merging compact objects provide an exciting opportunity to probe fundamental physics beyond General Relativity - this includes the potential for new fields and particles (e.g. dark matter candidates), and for modifications to General Relativity at higher curvature scales. To identify modifications to the standard paradigm we require accurate modelling of the effect of new physics on gravitational wave signals. In this talk I will discuss recent progress in modelling such effects in the strong, dynamical gravity regime of binary black hole mergers, using numerical techniques.

Presenter: CLOUGH, Katy