

Beyond the Background: Gravitational Waves and the Field Equations - Lydia Patton

Abstract:

The field equations of general relativity may be characterized as 'background' equations. That conceptualization implies that the equations are held constant in the background while independent empirical research programs test the implications that are drawn from them. In my view, this is an inaccurate picture of how the field equations function in gravitational wave astronomy. The equations were made empirical in a process that involved formal, structural, and empirical reasoning. The paper will lay out an approach that moves beyond the 'background' conception to show how the equations developed with methods of data and waveform analysis in gravitational wave astronomy.