Title:

Does General Relativity Highlight Necessary Connections in Nature?

Abstract:

The dynamics of general relativity is encoded in a set of ten differential equations, the so-called Einstein field equations. It is usually believed that Einstein's equations represent a physical law describing the coupling of spacetime with material fields. However, just six of these equations actually describe the coupling mechanism: the remaining four represent a set of differential relations known as Bianchi identities. In this talk, I will discuss the physical role that the Bianchi identities play in general relativity, and whether these identities --qua part of a physical law-- highlight some kind of a posteriori necessity in a Kripkean sense. Hopefully, my discussion will show that general relativistic physics has an interesting bearing on the debate about the metaphysics of the laws of nature.