

Towards coordinate independent estimates for electro-magnetic GW detectors

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There has recently been an increased interest in electro-magnetic GW detectors, due to the first detections of GWs and the rapid evolution of the technology driven by searches for light dark matter. The question how to calculate the response of e.g. a cavity to a GW has been debated since the 80s and the current understanding is that the usage of a special frame, the proper detector frame, is necessary to get the correct result. This idea is however somewhat disturbing, since coordinate invariance lies at the heart of general relativity, and criticism of this approach is therefore as old as the approach itself. We hope to clarify some of the issues leading to this apparent contradiction.

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