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Aberration in Gravito-Electromagnetism

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The dynamical effects of general relativity which go past Newtonian gravity, especially the expectation that gravitational effects propagate with a finite velocity, have not been directly verified.

The formalism of gravitoelectromagnetism will be applied to compute the first dynamical corrections to Newtonian gravity due to general relativity.

We consider a system with multiple sources of dynamical gravitational effects where the main problem arising is that there are different retarded times for the different sources. The Lagrange inversion theorem can then be used to express all dynamical effects in terms of the instantaneous time and then simply superpose them.

We apply our results to a proposed, realizable experimental set up and find a dynamical effect that could be observed in a LIGO type experiment.

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