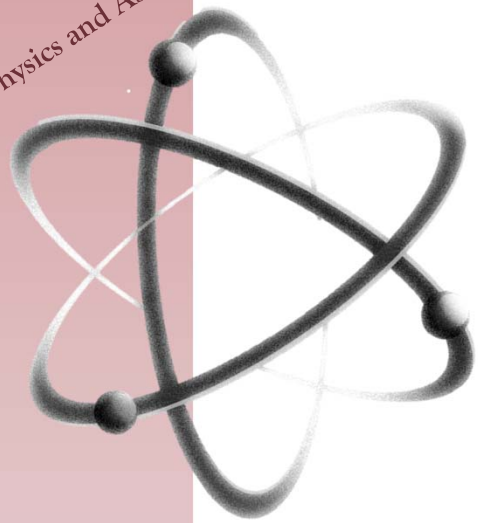
Department of Physics and Astronomy



University of South Carolina

Gravitational Waves

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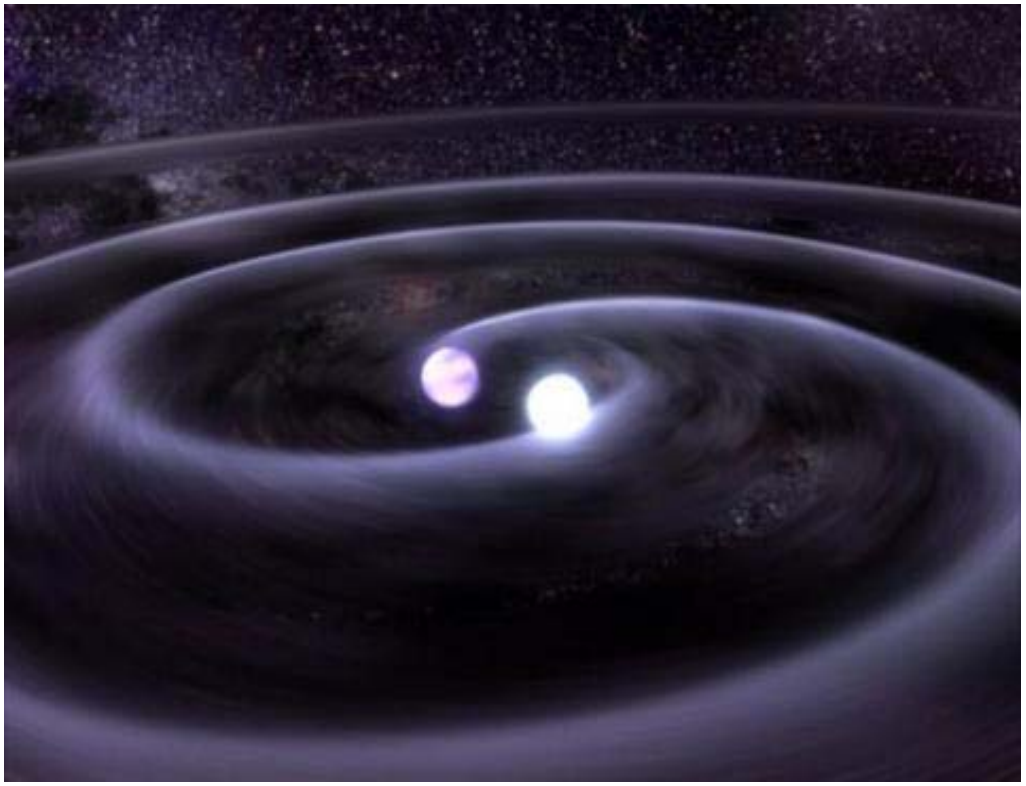
What is the “Gravitational Waves”?

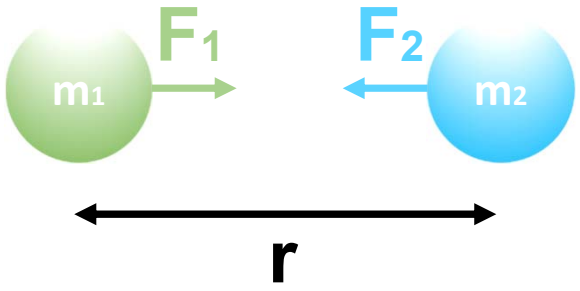


The Novel Prize in Physics 2017

Gravitational waves are waves that are carried out at the speed of light by fluctuating curvature of the gravitational field in space-time by mass.

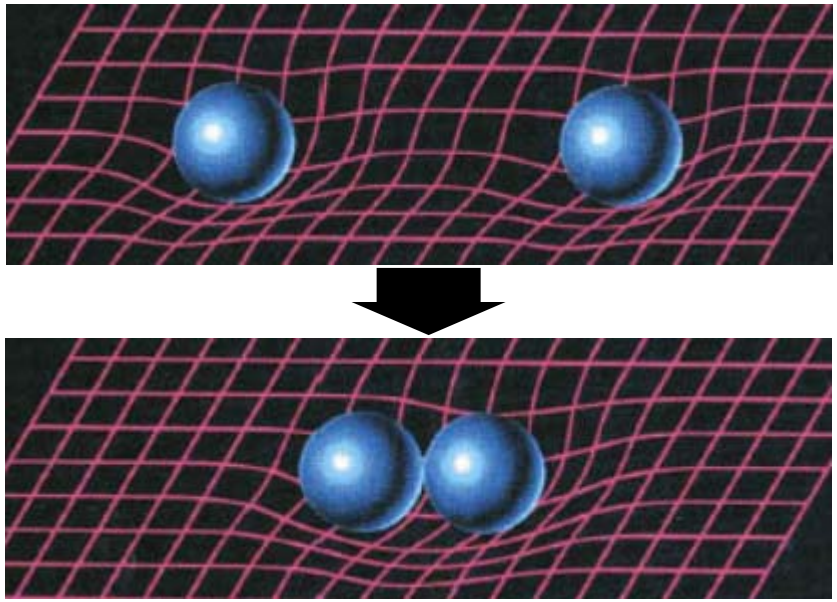
Gravitation Force

Newton's gravitation force perspective



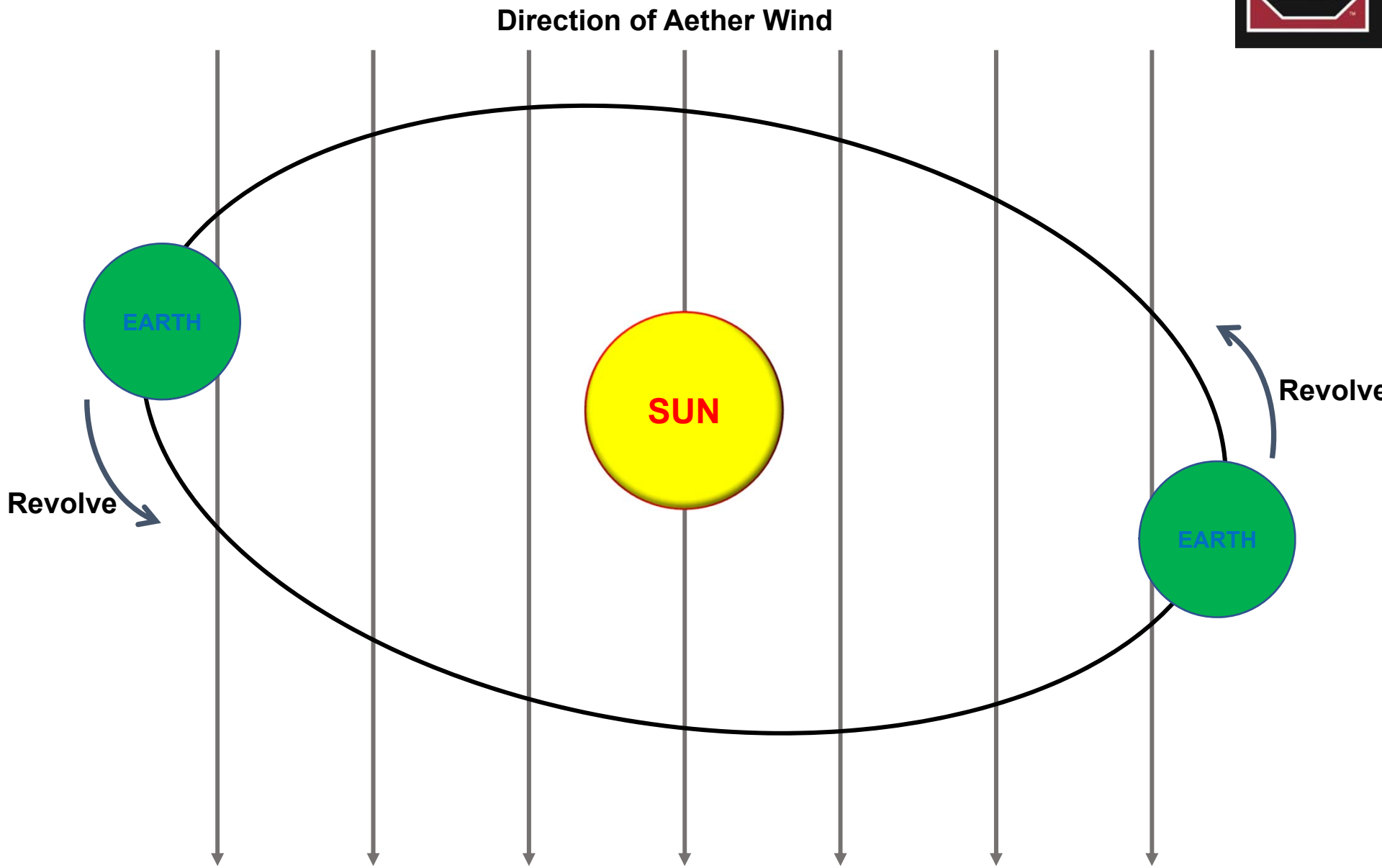
$$F_1 = F_2 = G\frac{m_1 \times m_2}{r^2}$$

Einstein's gravitation field perspective

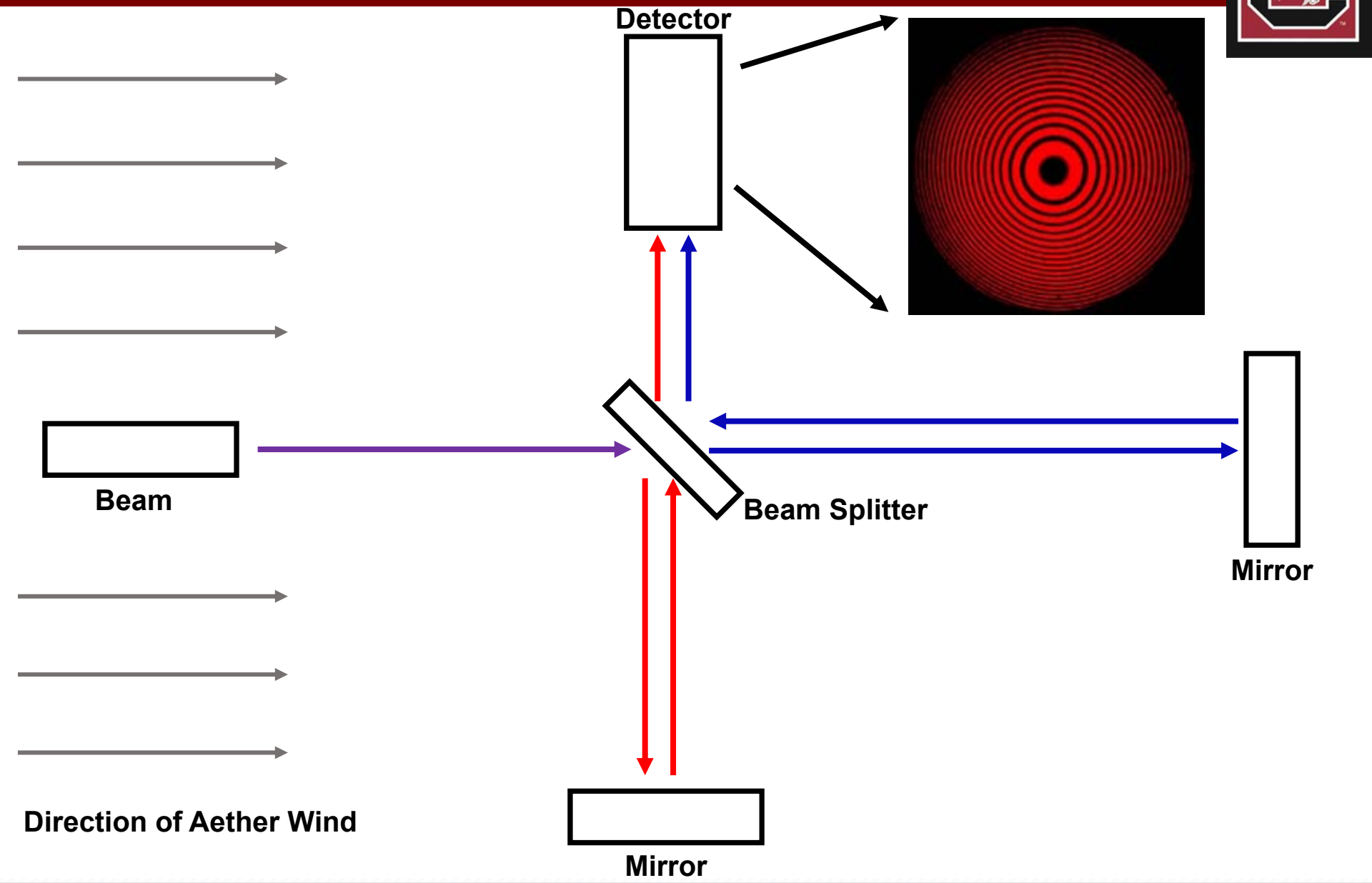


$$R_{\mu\nu} - \frac{1}{2}g_{\mu\nu}R = \frac{8\pi G}{c^4}T_{\mu\nu}$$

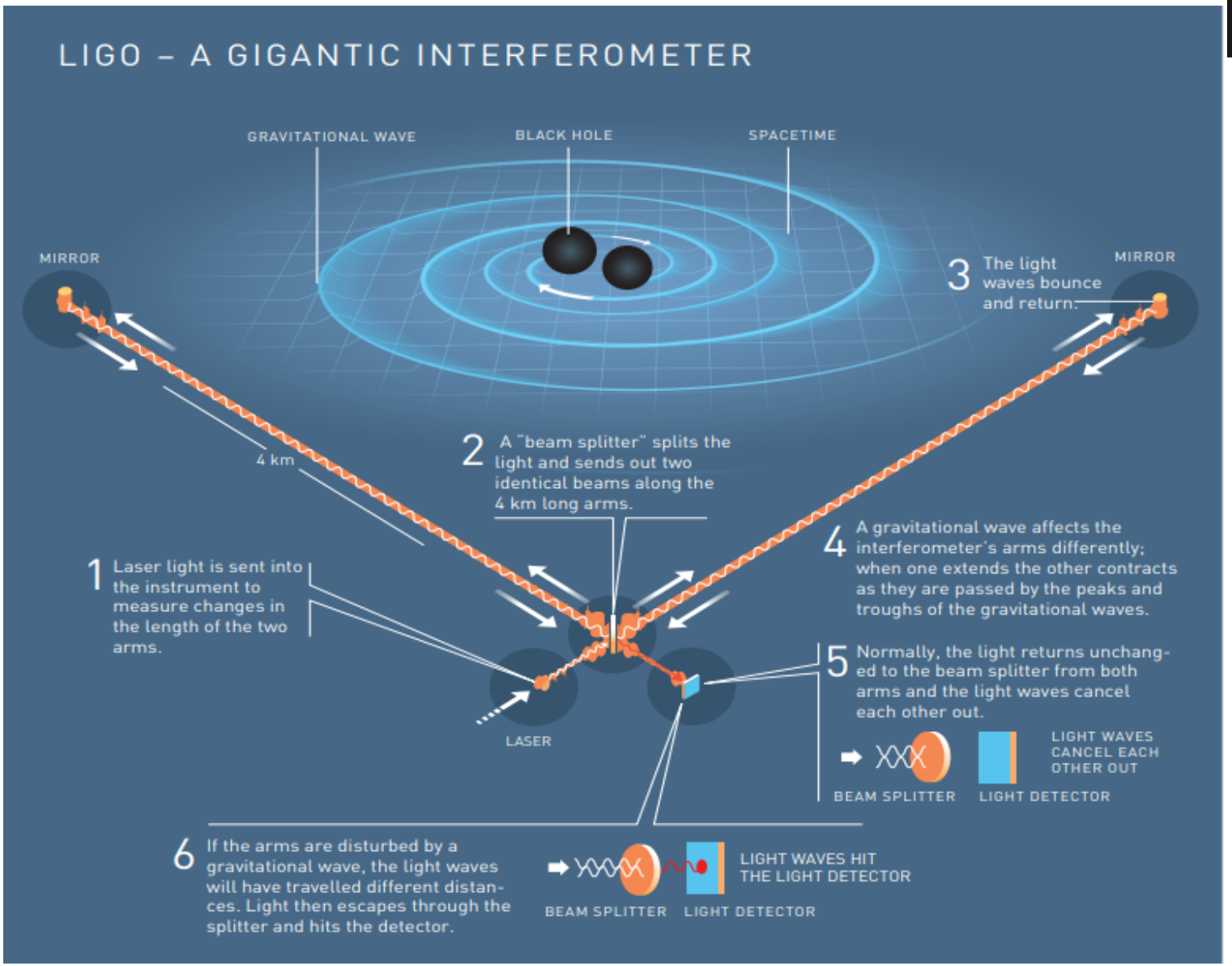
Michelson Interferometer



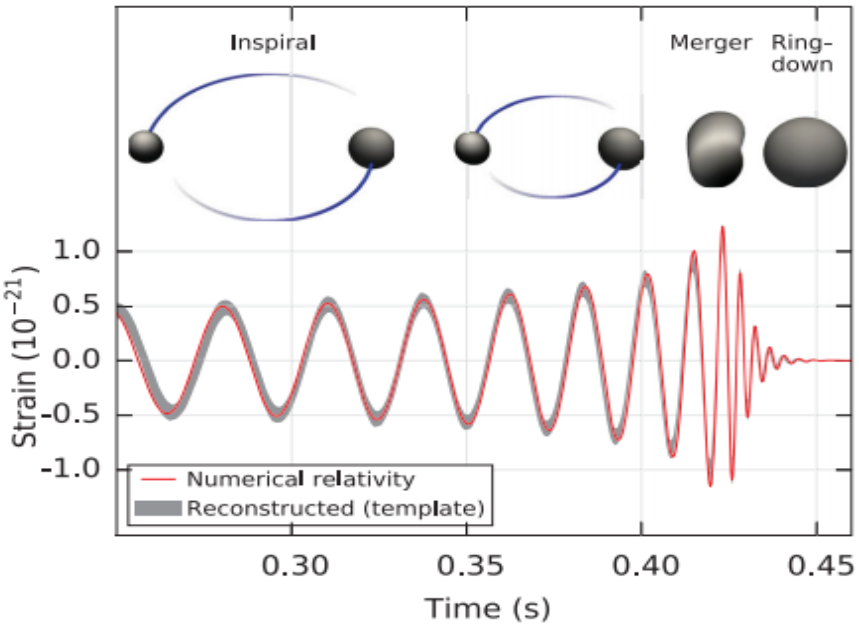
Michelson Interferometer



LIGO Experiment

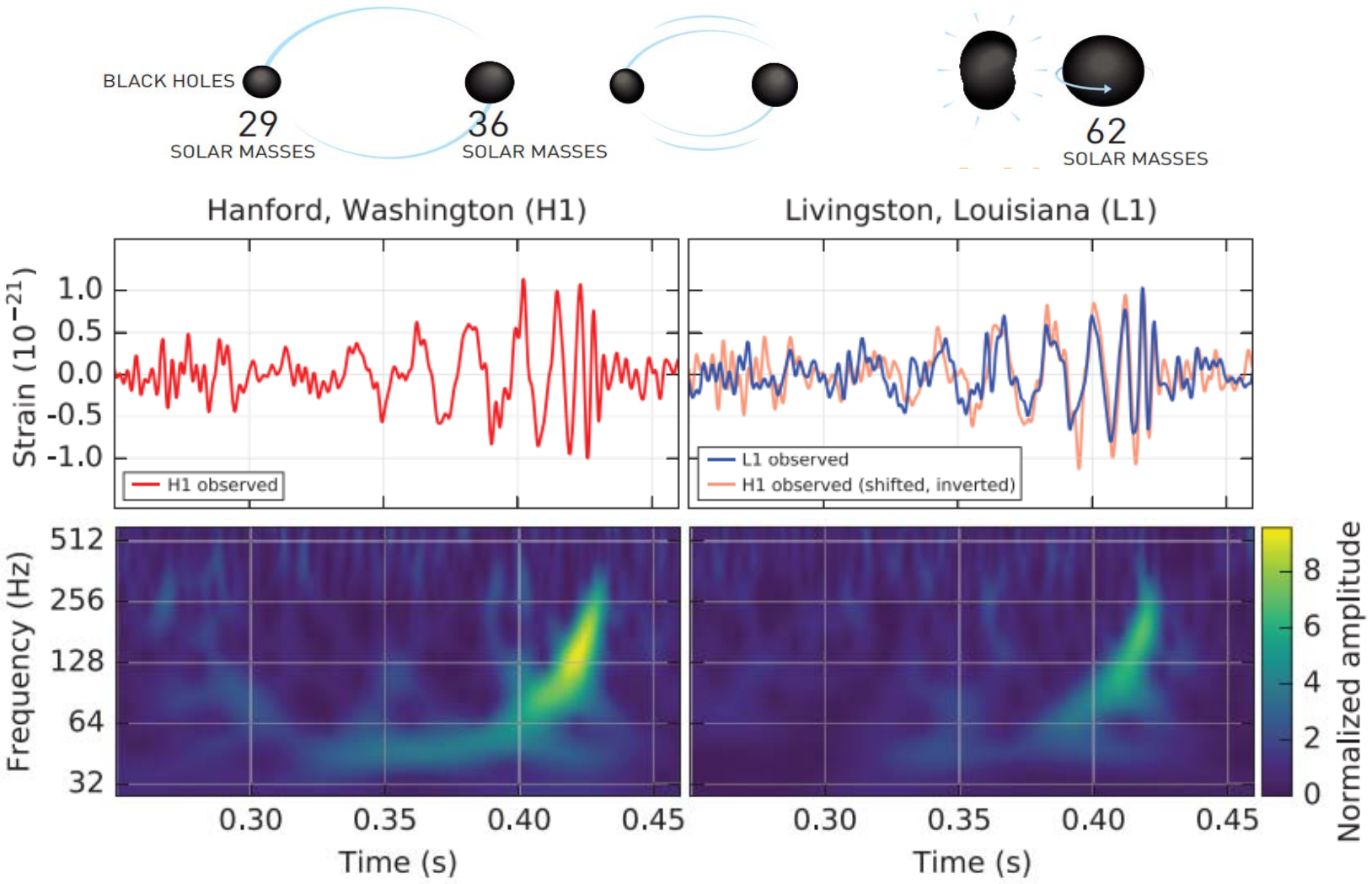


LIGO Experiment



Result of evidence of gravitational waves

LIGO Experiment



Reference

“Novel Prize” website

Dissertation named “Observation of Gravitational Waves from a Binary Black Hole Merger”