

Precision measurement from Einstein — and for Einstein.

David Shoemaker

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Abstract

The US Laser Interferometer Gravitational-wave Observatory (LIGO) recently made the first detections of gravitational waves from black holes. LIGO consists of two observatory sites, in Washington and Louisiana, USA, managed by the California and Massachusetts Institutes of Technology. The LIGO Laboratory has developed sensitive laser interferometers to detect the strain in space-time due to gravitational waves, predicted by Einstein as a consequence of general relativity. The instrument science behind the detectors is challenging because fundamental physics limits must be addressed. The promise of gravitational wave observations is a better understanding of general relativity, and otherwise impossible insights into exotic astrophysics.

About the speaker

David Shoemaker is the Director of the MIT LIGO (Laser Interferometer Gravitational-wave Observatory) Laboratory at the Massachusetts Institute of Technology, and Senior Research Scientist in the Kavli Institute at MIT, as well as a Visiting Associate at the California Institute of Technology. He received a Masters in Physics from MIT in 1980 and a Ph. D. in Physics from the Université de Paris in 1987. He has worked in the field of gravitational wave detection since 1980. He is a Fellow of the American Physical Society. He has served on numerous scientific advisory and program committees for the NSF, NASA, and for the European Gravitational Wave Observatory. He has served as the leader of the Advanced LIGO Project since 2006.