

ΣΕΜΙΝΑΡΙΑ Τμ. ΦΥΣΙΚΗΣ

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Αριστοτέλειο Πανεπιστήμιο
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ΤΜΗΜΑ ΦΥΣΙΚΗΣ

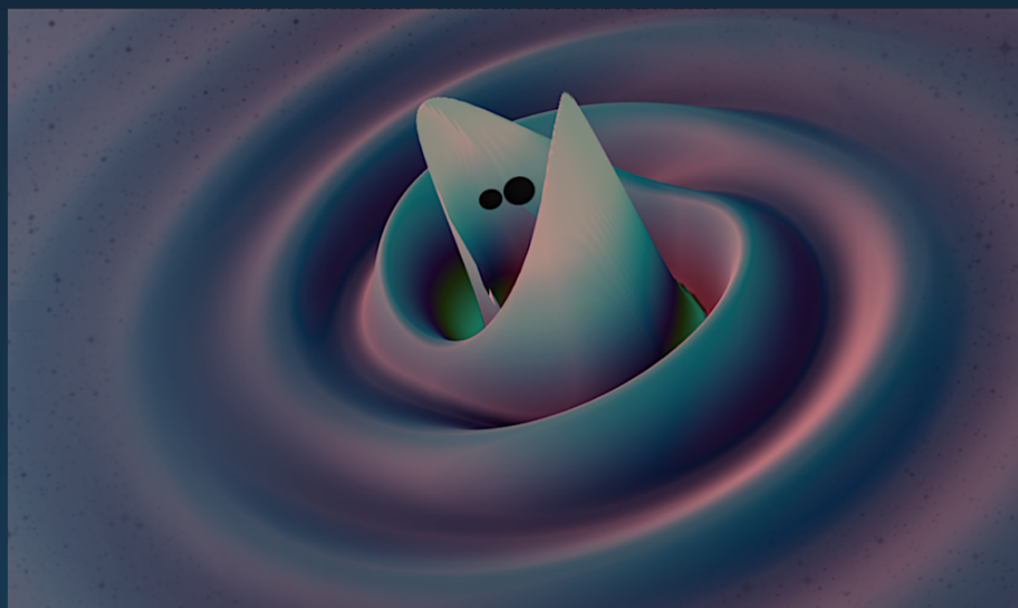


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A Decade of Gravitational Wave Astronomy and the Role of Numerical Relativity



Prof. Pablo Laguna, Department Chair
University of Texas at Austin & Weinberg Institute

Gravitational-wave astronomy has come of age with the landmark detections of signals from binary systems containing black holes and neutron stars. This achievement represents the culmination of decades of extraordinary scientific and engineering effort. In parallel, the numerical relativity community has played a central role in predicting what these signals would look like and in interpreting the observations once they arrived. In this talk, I will provide an overview of gravitational-wave observations and highlight how numerical relativity has become an indispensable tool for modeling, predicting, and characterizing the astrophysical sources that generate these cosmic ripples.

Prof. Pablo Laguna is a computational astrophysicist, investigating astrophysical phenomena involving binary systems with black holes and/or neutron stars. These systems provide the ultimate expression of Einstein's theory of General Relativity. Laguna's computational studies are contributing to a new astronomy based on gravitational wave observations. Laguna earned his B.S. in physics from the Universidad Autónoma Metropolitana (1981) and his Ph.D. from the University of Texas at Austin (1987). After postdoctoral appointments at UT Austin and Los Alamos National Laboratory, and a visiting position at Drexel University, he joined Penn State's Department of Astronomy and Astrophysics in 1992, rising to full professor by 2000. In 2008, he moved to the Georgia Institute of Technology as a professor in Physics and Computational Science and Engineering, becoming the founding director of the Center for Relativistic Astrophysics and later chair of the School of Physics. He was elected to the Mexican Academy of Science (2007) and named an APS Fellow (2008). In 2016, he received the APS Edward A. Bouchet Award for his work in numerical relativity. Laguna returned to UT Austin in 2020 as a professor of Physics and member of the Center for Gravitational Physics, becoming department chair in 2021.

