CSU PHYSICS COLLOQUIUM

"Measuring gravity at micron scale and other fun tricks with optically levitated microspheres"

Prof Giorgio Gratta

Stanford University

Monday, May 3rd at 4:00pm

Virtual via Zoom (see announcement for link)

Abstract

I will describe a new program of measurements in fundamental physics using optically levitated dielectric microspheres. The focus of the talk will be the recently completed first search for new, gravity-like interactions at micron scale using this novel technique. I will also show an array of other results, including searches for millicharged particles, Chameleon fields and techniques to manipulate the various degrees of freedom of the trapped microspheres.

Biography

Griorgio Gratta's career in Physics began with a Laurea degree at the University of Rome and a fellowship at the Italian National Institute for Nuclear Physics. He then was a research fellow at Caltech for more than a decade before joining the Physics faculty at Stanford, where he has been since 1995. Prof Gratta's work in experimental physics has included (this is not a complete list) traditional collider-based particle physics experiments at CERN and SLAC; accelerator-based neutrino oscillation studys; a novel detection scheme for ultra-high-energy cosmic neutrinos; and Xenon double-beta decay studies, in addition to the work that he will be discussing today.