

Under the auspices of the Embassy of Canada to Greece

**Date:** 27/06/2019

**Time:** 18:00

**Massalias 22, 1<sup>st</sup> floor, Kennedy Gallery**

**Title:**

Novel Directions in the Search for New Physics

**Abstract:**

The Standard Model has been successful in describing phenomena that we observe from galactic down to subatomic scales. Nevertheless, it is not complete. The extreme weakness of gravity or the nature of Dark Matter are examples of puzzles that suggest the presence of new physics. Traditionally, we look for answers at colliders. In the last few years, we realized some of these answers may come from black holes or from precision experiments that look for the tiny signals with which new physics may manifest itself.

**Bio:**

Asimina Arvanitaki (PhD Stanford University, 2008) is the Stavros Niarchos Foundation Aristarchus Chair in Theoretical Physics at Perimeter Institute, where she has been a Faculty member since 2014.

Arvanitaki is the first woman to hold a named chair at Perimeter Institute. She suggested naming the chair for Aristarchus — the ancient Greek astronomer who surmised that the Earth rotated around the sun centuries before Copernicus — in a nod to the cosmological scope of her research, the Greek background of the Stavros Niarchos Foundation, and her own Greek origins.

Arvanitaki is a particle physicist whose work has focused on designing novel experiments that search for new phenomena and new forces of nature. She has shown, for example, how atomic clocks - the most precise time-keeping devices to date that are used to define the second and are responsible for the GPS that we all use - can be used to detect Dark Matter, the unknown mass component of our Cosmos that is responsible for the existence of galaxies.

She has also shown how black holes, such as those recently detected at the LIGO experiment, can be used to diagnose the presence of new particles. For her work, she was co-awarded the 2017 New Horizons in Physics Prize by the Breakthrough Prize Foundation.

Arvanitaki previously held research positions at the Lawrence Berkeley National Laboratory at the University of California, Berkeley (2008-2011), and the Stanford Institute for Theoretical Physics at Stanford University (2011-2014).