



European Research Day 2017

4 December | Delegation of the European Union to Japan, Tokyo

T01 - Dr. Antonino FLACHI, Associate Professor, Italian Keio University, Research and Education Center for Natural Sciences

[Researchgate Profile](#) || flachi@keio.jp

My research project:

To most people "emptiness" means nothing. In quantum physics, however, "emptiness" thrives with action. How this is possible and what are the consequences of this is still unclear, but very important. Understanding how the quantum nothingness behaves is related to the deep mysteries of the universe, to the limit of technology, and could have far-reaching ramifications. My talk will explore new ideas on how to harness "a force from nothing".¹

My career path:

I received my Ph.D. in theoretical physics the University of Newcastle upon Tyne (UK). I was then a "Marie Curie" postdoctoral Fellow at the Institute of High Energy Physics in Barcelona, a fellow of the Japanese Society for Promotion of Science and a Yukawa Fellow at the Yukawa Institute for Theoretical Physics in Kyoto, an assistant professor at the Center for Astrophysics and Space Science at Baylor and a COFUND principal investigator at the University of Lisbon. I am currently a tenure track associate professor at Keio University.

My relation to Europe:

During the past years, I have been involved in several research projects with colleagues in Germany, Spain, Portugal, France and Italy. My work has been supported in the past by European fellowships (an individual Marie Curie fellowship and a COFUND principal investigator fellowship). The most recent research project that I am leading involves two professors from the Center of Physics and Engineering of Advanced Materials (E. Castro and P. Ribeiro) at IST Lisbon and one Italian researcher (V. Vitagliano) that is about to move to Keio University on a JSPS fellowship. Our project is concerned with the physics of graphene and how this extraordinarily versatile material can be used to clarify our understanding about the fundamental laws of nature and about gravity, in particular. In my opinion, the possibility for European researchers residing in Japan (or outside of the EU) to directly apply for European grants would certainly offer a direct and efficient path to allow European nationals conducting research outside of the boundaries of the EU to be proactive regarding collaborations with colleagues in Europe (and to maintain such collaborations).

¹ A. Flachi, PRL 110 060401 (2013); A. Flachi, et al., PRL 113 (2014) 091102; A. Flachi, et al., PRL 114 (2015) 181601; A. Flachi, et al., PRL 119 (2017) 031601