

De *Madrid* al *Cosmos*

How does a black hole die?
Cosmological and astrophysical
consequences

Francesca Vidotto

UPV/EHU

Abstract: Black holes are not forever: Hawking radiation or other instabilities of quantum-gravitational origin can make their life finite. I present a concrete realisation of how this can happen: the black-hole geometry can tunnel to a white-hole geometry. While the process is expected to be generic of all black holes, it becomes observationally relevant for primordial black holes. A first consequence of the proposed scenario is to shed light on how a remnant can form and be stable, providing a viable dark-matter candidate. Second, the white-hole phase can be accompanied by an explosion, that presents characteristic features allowing to distinguish it from other astrophysical sources. I discuss in particular a possible emission channel compatible with fast radio bursts. Interestingly, exploding primordial black holes constitute a peculiar kind of decaying dark matter, whose effects could appear in late-universe observations.

Jueves 17 de enero, 15:00 h.
Sala de Conferencias
IEM-CSIC (Serrano, 121)

Ciclo de seminarios organizado conjuntamente por los grupos

- *Teorías Efectivas en Física Moderna* (UCM)
- *Gravitación y Cosmología* (IEM-CSIC)

Web: <http://demadridalcosmos.csic.es>



CSIC
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS