ICFO

Foundational Questions Institute

Antonio Acin receives funding to study **The Physics of What Happens**

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What happens to the foundational questions of physics and cosmology, particularly new frontiers and innovative ideas integral to a deep understanding of reality that are so new that they are considered unlikely to be supported by conventional funding sources? Can the world afford to ignore the potentially paradigm shifting questions that could provide deep understanding of reality, perhaps very different from the way we understand the universe today?

Luckily, there are private foundations, like The Foundational Questions Institute (FQXi), that believe that these big questions should not be ignored. This physics philanthropic organization aims to support research that is both foundational (with potentially significant and broad implications for our understanding of the deep or "ultimate" nature of reality) and

unconventional (enabling research that, because of its speculative, non-mainstream, or high-risk nature, would otherwise go unperformed due to lack of funding).

To this end, the FQXi has recently announced the selection of 20 teams around the world who will together receive a total of $1.85 million in grants for research and outreach projects on the fundamental nature of "Events" in physics. ICREA Group Leader at ICFO Antonio Acin, has been chosen from nearly 250 applicants worldwide, to receive funding for his project on "Quantum Bayesian networks: the physics of nonlocal events". In addition, he will act as co-PI on a second FQXi funded project officially led by Miguel Navascues at Bilkent University entitled "Towards an almost quantum physical theory".

"The notion of an ?event? is one of these things that seems so obvious and so familiar in everyday life," says FQXi Associate Director and UCSC cosmologist Anthony Aguirre. "Yet events simply don?t exist in a fundamental physics description of the world in terms of forces, particles, fields and wavefunctions. An understanding of ?events' is key to understanding how the reality we experience relates to fundamental physics. We?re excited to see the output of these fascinating research projects and what they tell us about how to understand the universe we live in."