



FOUNDATIONAL QUESTIONS INSTITUTE

FOR IMMEDIATE RELEASE

International Physics Grants Program Enables Research Into the “Physics of What Happens”

Decatur, GA – July 21, 2015

The Foundational Questions Institute (FQXi), a physics philanthropic organization, has announced the selection of 20 teams around the world, who will receive a total of \$1.85 million in funding for research and outreach projects on the fundamental nature of “events” in physics. Funding will support projects for two years beginning September 2015.

The winning teams, chosen from nearly 250 applicants worldwide, will research deep questions in physics, cosmology, philosophy, and related fields. The 20 funded projects will tackle questions such as:

- How can we make sense of causality in a quantum world?
- Is space made of discrete event “atoms”?
- How do we perceive the flow of time from a sequence of events?

“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.”

The full list of research grant winners can be found at fqxi.org.

FQXi has a mission to catalyze and support research on questions at the foundations of physics and cosmology, particularly new frontiers and innovative ideas integral to a deep understanding of reality, but unlikely to be supported by conventional funding sources.

Contact:

Brendan Foster – Scientific Programs Consultant – foster@fqxi.org – +1-443-760-2382

Kavita Rajanna – Managing Director – mail@fqxi.org

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FQXi 2015 Physics of What Happens Grantees

Investigator Name	Investigator Institute	Project Title	Award Amount
Antonio Acin	ICFO - The Institute of Photonic Sciences	Quantum Bayesian networks: the physics of nonlocal events	\$76,296.00
John Barrow	University of Cambridge	Stuff Happens: the Physics of Events	\$95,954.00
Raphael Bousso	University of California, Berkeley	Quantum Information, Quantum Gravity, and Quantifying How Much Happens	\$142,820.00
Eric Cavalcanti	Swinburne University of Technology	Events, agents and causation in ontological models of quantum theory	\$94,300.00
Catalina Curceanu	INFN, LNF	"Events" as we see them: experimental test of the collapse models	\$85,000.00
Thomas Durt, Ralph Willox, and Samuel Colin	Institut Fresnel; University of Tokyo; CBPF	Quantum Rogue Waves as Emerging Quantum Events	\$54,650.00
Steve Giddings	University of California, Santa Barbara	Observables in quantum spacetime	\$101,899.00
John Harding	New Mexico State University	Events as Decompositions	\$44,330.00
Lucien Hardy and James Vicary	Perimeter Institute; University of Oxford	Categorical Compositional Physics	\$148,325.00
Sabine Hossenfelder	Frankfurt Institute for Advanced Studies	Spacetime Defects	\$126,000.00
Adrian Kent	DAMTP, University of Cambridge	Quasiclassical events in Relativistic Quantum Field Theory	\$105,000.00
Matthew Leifer	Perimeter Institute	Quantum Theory in the Block Universe	\$52,601.00
Lloyd, and Vittorio Giovannetti	Universita' di Pavia; M.I.T.; Scuola Normale Superiore	Quantum Spacetime from Events	\$44,965.00
Samir Mathur	The Ohio State University	What is an event?	\$59,106.30
Miguel Navascues	Bilkent University	Towards an almost quantum physical theory	\$132,480.00
Kevin Resch and Robert Spekkens	University of Waterloo; Perimeter Institute	Experimental test of intrinsically quantum causal relations	\$99,705.00
Benjamin Schumacher	Kenyon College	Eidostates and physical records of events	\$73,425.20
Anthony Short	University of Bristol	Emergent Relativity	\$59,280.20
Howard Wiseman and Michael Hall	Griffith University	How do measurement events emerge from Many Interacting Worlds?	\$103,894.50
Wojciech Zurek	Theiss Research	Events, Irreversibility, and the Objective Past of a Quantum Universe	\$150,000.00
		Total Amount:	\$1,850,031.20