

New QuantEmX Awards – research exchange awards to further our understanding of emergent quantum phenomena in novel materials

This is an era of extraordinary promise for research into quantum materials. The discovery of entirely new classes of materials including high temperature superconductors, topological insulators, multiferroics, strange metals and states of hidden order reflect a new realization that quantum materials are emergent, developing new and wholly unexpected properties associated with the collective quantum behavior of electrons and atoms.

These new discoveries, combined with new theoretical insights and unprecedented improvements in our ability to synthesize at the atomic scale and to spectroscopically probe quantum materials, often under extreme conditions of pressure, temperature and field, make the study of emergent quantum materials a 21st century frontier for discovery and bold new applications.

Because of the complexity and scope of emergent phenomena, it is critically important that different groups collaborate to advance our understanding and accelerate the development of these materials. With this in mind, the Gordon and Betty Moore Foundation and the Institute for Complex Adaptive Matter announce the ***QuantEmX (Quantum Emergence Exchange) Awards*** to foster new collaborations that further our understanding of emergent quantum phenomena in novel materials.

The majority of these awards are for experimental research, but some support for outstanding theoretical research efforts will be considered. Both the Moore Foundation, through its Emergent Phenomena in Quantum Systems (EPIQS) and the Institute for Complex Adaptive Matter have interests in phenomena that include topological insulators, novel superconductors, two-dimensional quantum matter, interfacial quantum matter, frustrated magnets, and materials/devices for quantum information technology.

Each year we will provide

- Short travel awards for EPIQS/ICAM junior or senior scientists to carry out short (2-3 week) research visits to other EPIQS/ICAM labs or suitable research facilities (such as light sources, neutron scattering labs, or high field magnet labs).
- Longer term (6-8 weeks) awards for EPIQS/ICAM junior or senior scientists to initiate new research with other EPIQS/ICAM labs.

Applications will be reviewed on a quarterly basis until filled each year. **For 2016-17, the application deadlines will be Sept 1, 2016, Dec 1, 2016, March 1, 2017, and June 1, 2017.**

Applications will be reviewed by the QuantEmX steering committee, which will include ICAM Leaders Piers Coleman [Rutgers], Daniel Cox [UC Davis], Rajiv Singh [UC Davis], and Khandker Quader [Kent State], EPIQS Researchers Dmitri Basov [Columbia], Colin Broholm [Johns Hopkins], Jak Chakalian [Rutgers], Sang Cheong [Rutgers], and Emilia Morosan [Rice], as well as Laura Greene [Florida State/NHMFL].

Applications will be online, available beginning Aug. 1, 2016, at <http://icam-i2cam.org/index.php/QuantEmX>, and will require a brief proposal, short CV, a short budget, and appropriate letters of support from applicants/hosts. The table below shows the deadlines, award times, and travel dates for the coming year.

Application Window	Award Notifications	Travel Dates
Aug. 1-30, 2016	By Sept 30, 2016	Oct.1 2016-March 31, 2017
Sept. 1, 2016-Nov. 30, 2016	By Dec. 31, 2016	Jan 1 2017-June 30, 2017
Dec. 1, 2016-Feb. 28, 2017	By March 31, 2017	April 1, 2017-Sept. 30, 2017
March 1, 2017-May 31, 2017	By June 30, 2017	July 1 2017-Dec. 31 2017

The Gordon and Betty Moore Foundation established the [Emergent Phenomena in Quantum Systems](#) (EPiQS) program in 2014 to promote greater understanding of complex quantum systems. The Moore Foundation fosters path-breaking scientific discovery, environmental conservation, patient care improvements and preservation of the special character of the Bay Area. Visit Moore.org or follow @MooreFound.

ICAM, the Institute for Complex Adaptive Matter, centered at the University of California, Davis, is a global network of research institutions, including many national labs, with an interest in emergent phenomena in quantum matter.

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