



EVA ANDREI

June 27, 2022

10:00 to 11:30

ICFO Auditorium

THE MAGIC OF ATOMICALLY THIN CRYSTALS

By Eva Andrei ([Department of Physics and Astronomy Rutgers University](#))

BIOGRAPHY:

Eva Y. Andrei is an experimental condensed matter physicist known for her work on low-dimensional electron systems. She is best known for the discovery of the electronic properties of twisted bilayer graphene including the observation of Van Hove singularities and the formation of flat bands at small twist angles, the renormalization of fermi velocity and more recently the observation of nematic charge order. Her discovery in 2009 of the fractional quantum Hall effect in graphene was listed by Science magazine among the 10 best scientific breakthroughs of the year. For her work on the magnetically induced Wigner crystal in GaAs/GaAlAs heterojunctions Andrei was awarded the Physics Medal by the French CEA.

Prof. Andrei is a chaired Professor in the department of Physics at Rutgers University. She is a fellow of the National Academy of Sciences, the American Academy of Arts and Sciences, the American Association for the Advancement of Science, and the American Physical Society.

ABSTRACT:

The isolation of atomically thin crystals has changed the way we think about materials. It opened a new material paradigm which made it possible to design, tune, and control electronic properties without changing chemical composition, by using nontraditional means such as superposing different layers, misaligning them or inducing strain. In this talk I will describe highlights from this rapidly evolving field, from its serendipitous inception to the use of twisted or buckled layers to engineer flat electronic bands with non-trivial topology that enable the emergence of novel correlated electronic phases.

REFERENCE(S):

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