# COLLOQUIUM SERIES: The Magic of Moire Quantum Matter

## PABLO JARILLO-HERRERO

January 18, 2024
12:00 to 13:00
ICFO Auditorium

**BIO:**

MIT Professor of Physics since 2008 and Distinguished Invited Professor at ICFO, Prof Pabl Jarillo-Herrero, is a world renown expert in the area of experimental condensed matte physics, in particular quantum electronic transport and optoelectronics in novel lo dimensional materials, such as graphene and topological insulators (TIs). He is well-kno n for his pioneering research on twisted bilayer graphene, and has received many awards f r his career to date including the Spanish Royal Society Young Investigator Award (2007), n NSF Career Award (2008), the IUPAP Young Scientist Prize in Semiconductor Physics (2010 , a DOE Early Career Award (2011), a Presidential Early Career Award for Scientists a d Engineers (PECASE, 2012), an ONR Young Investigator Award (2013), Breakthrough of t e Year Award by Physics World (2018), the Buckley Prize (2019), a Wolf Prize in Physics (2020)

the Medal of the Spanish Royal Physics Society (2020), a US National Academy of Science Award for Scientific Discovery (2021), a NIMS Award from the National Institute for Material Science, Japan (2021), a Max Planck Humboldt Research Award (2021), and the Roya Academy of Sciences Ramon y Cajal Medal (2023) among others

**ABSTRACT:**

The understanding of strongly-interacting quantum matter has challenged physicists f r decades. The discovery five years ago of correlated phases and superconductivi y in magic angle twisted bilayer graphene has led to the emergence of a new mater als platform to investigate strongly interacting physics, namely moire quantum matter These systems exhibit a plethora of quantum phases, such as correlated in ulators, superconductivity, magnetism, ferroelectricity, and more. In this talk I will review so e of the recent advances in the field, focusing on the newest generation of moire quant m systems, where correlated physics, superconductivity, and other fascinating phases ca be studied with unprecedented tunability. I will end the talk with an outlook of some excitin directions in this eme

Hosted by Prof. Dr. Adrian Bachtold and Prof. Dr. Frank Koppens.

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