

Abstract Submitted
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Fractional quantum Hall effect in graphene on boron nitride

CORY DEAN, Columbia University, Electrical Engineering & Mechanical Engineering, ANDREA YOUNG, PAUL CADDEN-ZIMANSKY, Columbia University, Department of Physics, LEI WANG, Columbia University, Electrical Engineering, HECHEN REN, Columbia University, Department of Physics, KENJI WATANABE, Advanced Materials Laboratory, National Institute for Materials Science, Japan, TAKASHI TANIGUCHI, Advanced Materials Laboratory, National Institute for Materials Science, PHILIP KIM, Columbia University, Department of Physics, JAMES HONE, Columbia University, Mechanical Engineering, KEN SHEPARD, Columbia University, Electrical Engineering — Graphene is a remarkable 2D material exhibiting many unique and surprising many-body effects resulting from strong electron interactions. A continuing challenge remains the fabrication of ultra-high mobility devices that allow the intrinsic character of graphene to be fully explored. In my talk I will discuss our recent advancements in fabricating very-high quality graphene devices on boron nitride. Magnetoresistance measurements under very large applied fields will be presented including our recent observation of the fractional quantum Hall effect in multi-terminal devices over a broad range of carrier densities.

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