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Effect of long-range disorder on competing orders in bilayer graphene[1] MARTIN RODRIGUEZ-VEGA, CHRISTOPHER TRIOLA, JUNHUA ZHANG, ENRICO ROSSI, College of William & Mary — Two general classes of spontaneously broken symmetry phases have been proposed for bilayer graphene: a gapped phase and a nematic phase. Some experiments suggest the establishment of a nematic phase whereas others suggest the presence of a gapped phase. In this talk I will present the results of our theoretical study of the effect of long-range disorder on the conditions for the establishment of a nematic or a gapped phase in bilayer graphene. In particular I will discuss the effect of the disorder-induced carrier density inhomogeneities on the properties and robustness of each phase. I will then discuss the relevance of our results for the current experiments.

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Martin Rodriguez-Vega
College of William & Mary

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