

The physics of excitons in novel 2D materials

Introduce

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Interviene

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Abstract

Since the arrival of graphene the collection of 2D materials is increasing every year. 2D semiconducting materials like MoS₂ and hexagonal boron nitride were among the first to exhibit novel excitonic properties like very large exciton binding energies as a result of an exceptionally strong Coulomb interaction, properties like the spin and valley polarizations, and interlayer excitons in 2D heterostructures have a large binding energy but longer radiative lifetimes. Moreover, with the arrival of 2D magnetic materials, excitonic properties can be modified by means of magnetic proximity effects. In my talk, I will discuss the physics of excitons in 2D materials from a theoretical perspective and our recent results. Our approach is based in ab initio simulations, within the framework of many-body perturbation theory. I will also introduce an overview of our ongoing research.

Seminario

Giovedì 2 dicembre 2021

Aula 22, ore 11:30

Via Garzetta 48, Brescia

