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Structure and spectroscopic properties of 2D materials beyond graphene with a focus on Boron nitride

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場所：東京大学工学部2号館旧産業機械 会議室 (2-73C2)

This lecture will first introduce general features on graphene and 2D materials, which motivate the considerable attention this new class of materials is receiving since about ten years. We shall in particular consider the promising electronic and optical properties of these materials which turned to depend on the number of layers and on the nature of the layer stacking and to be dominated by unusual electron-hole interactions resulting in non trivial excitonic effects.

We shall then focus on hexagonal boron nitride (h-BN), which is a wide band gap semiconductor (~ 6.5 eV), with sp^2 hybridation, which meets a growing interest for deep UV LED and graphene and 2D materials engineering. We will examine the interplay between structure and spectroscopic properties of both BN and Black Phosphorus (P(black)) mechanically exfoliated layers, using cathodoluminescence (CL) at 4K, Raman spectroscopy, HRTEM and angular resolved Electron Energy Loss Spectroscopy (EELS) using a monochromated Libra 200 TEM-STEM at low tension. In the case of h-BN, we will show in particular how the spectroscopic properties can be the basis for defining a characterization metrics for h-BN.



主催：

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