

Optical Spectroscopy of Individual Nano-materials with Defined Atomic Structure

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Abstract:

When the characteristic length of a material shrinks to 1 nm scale, many distinct physical phenomena, such as quantum confinement, enhanced many-body interactions and strong van der Waals inter-material couplings, will appear. To investigate these related fascinating low-dimensional physics, we need a tool to quantitatively link the atomic structures to the physical properties of very small nano-materials. In this talk, I will introduce our recently developed in-situ TEM + nanooptics technique [1,2], which combines capability of structural characterization in TEM and property characterization in nanooptics on the same individual nano-materials. Several examples of using this technique to study the physics in 1D carbon nanotube system [3-6] and 2D atomic layered materials [7-8] will be demonstrated.

References:

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