

Mixed-Dimensionality Nanoscale Heterojunctions for Energy Harvesting and Opto-Electronic Technologies



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Abstract: Low-dimensional nanomaterials have emerged over the last thirty years as promising material platforms for many technologies. These include one-dimensional materials like single-walled carbon nanotubes (SWCNTs), two-dimensional materials like graphene and monolayer transition metal dichalcogenides (TMDCs), and zero-dimensional materials like semiconductor nanocrystals (NCs). This lecture will discuss how these low-dimensional building blocks can be combined into heterostructures with nearly limitless possibilities. The physical and electronic structure at these heterointerfaces can be chosen or manipulated to facilitate exciton, charge, or spin transfer in specific directions, a prerequisite for designing opto-electronic devices with specific functionalities for e.g. energy harvesting, information processing, and (photo)catalysis.

今回、工学研究科の今堀先生のホストでJGP招聘教授として来日し、宇治地区でも講演いただけることになりました。学生、研究員のみなさんも、多数参加ください。