
HL 51: Invited Talk: F. Henneberger

Time: Thursday 9:30–10:00

Location: H17

Invited Talk

HL 51.1 Thu 9:30 H17

All-epitaxial inorganic/organic semiconductor hybrid heterostructures — ●FRITZ HENNEBERGER — Humboldt-Universität zu Berlin, Institut für Physik, Deutschland

This talk summarizes recent efforts to fabricate hetero- and nanostructures based on ZnO and various conjugated organic materials as well as to tailor their electronic and optical properties. Growth by molecular beam epitaxy of both material components ensures well-defined

interfaces and highest structural quality. The relevant growth mechanisms up to the level of organic/inorganic superstructures and the interfacial energy structure including *band-gap* engineering through molecular morphology are discussed. Direct electronic coupling of the fundamental excitations (Frenkel and Wannier-Mott excitons) across the interface is achieved with coupling constants on the meV-energy scale. Efficient nonradiative energy transfer reducing, e.g., markedly the organic lasing threshold, charge separation at the interface, and inorganic/organic pn-junctions are also demonstrated.