Mesoscopic Materials Research Laboratory Seminar

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Room **204,** Science and Technology Research Building 3

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Nanostructures: Physics and Technology

Atomistic configuration of interfaces makes a significant influence on a band structure of semiconductor nanosystems, their optical and transport properties. We review a current state of tight-binding method [1] which is utilized in atomistic modeling of nanostructures. A number of interface-induced phenomena will be analyzed: the formation of interface states at non-common atom interfaces, valley mixing at the interfaces, spin splitting in quatum wells induced by interface anisotropy, and the renormalization of spectrum in HgTe/CdTe quantum wells.