472. Title:III-V semiconductor nanowires for optoelectronic device applications
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Abstract:Semiconductor nanowires have recently emerged as a new class of materials with significant potential to reveal new fundamental physics and to propel new applications in quantum electronic and optoelectronic devices. Semiconductor nanowires show exceptional promise as nanostructured materials for exploring physics in reduced dimensions and in complex geometries, as well as in one-dimensional nanowire devices. They are compatible with existing semiconductor technologies and can be tailored into unique axial and radial heterostructures. In this contribution we review the recent efforts of our international collaboration which have resulted in significant advances in the growth of exceptionally high quality IIIV nanowires and nanowire heterostructures, and major developments in understanding the electronic energy landscapes of these nanowires and the dynamics of carriers in these nanowires using photoluminescence, time-resolved photoluminescence and terahertz conductivity spectroscopy.