

85c Colloidal InP Quantum Wires and Quantum Rods: Synthesis, Photoluminescence, and Quantum Confinement Effects [Invited]

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Soluble, narrowly dispersed InP quantum wires with controllable diameters and rods with controllable diameters and lengths are grown from Bi nanoparticles by the solution-liquid-solid (SLS) mechanism in the presence of hexadecylamine (HDA) and other conventional quantum-dot surfactants. Quantum wires are ideal 2D-confinement systems, the properties of which will be compared to those of the analogous 3D-confined dots and anisotropically 3D-confined rods. The critical length where a rod becomes a wire will be analyzed. The photoluminescence of these quantum wires and rods will be described.