

Priority Programme

“Material Synthesis near Room Temperature”



Project Description – Project Proposal

Electrochemical Synthesis of III-V (GaN, InN, GaSb, InSb, AlSb) and Metal Sulfide (ZnS, GaS) Compound Semiconductors and their Nanostructures from Ionic Liquids

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Summary of proposal

This project is intended to develop III-V (GaN, InN, GaSb, InSb and AlSb) and metal sulfide (ZnS and GaS) compound semiconductor thin films and their nanostructures (nanotubes, nanowires and macroporous structures) by electrodeposition / electroless deposition in various ionic liquids near room temperature. The major focus will be to understand the mechanism of formation of these compound semiconductors. The reaction mechanism will be studied based on analysis of the IL-salt mixtures, electrode/electrolyte interface and the resulting deposits. The influence of the IL composition on the deposit morphology and optical properties will be investigated. Furthermore, the semiconductor nanostructures will be made both by template-assisted and template-free electrochemical synthesis that opens up a new way to synthesize semiconductor nanostructures near room temperature.