

## Synthesis of polymeric CdS and its optical properties investigation

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Producing of polymeric cadmium sulfide in polyvinyl alcohol matrix is reported. The result was achieved through solid state sulfurization of hybrid interpolymeric complex of polyvinyl alcohol with cadmium chloride. In this process CdS inherits polymeric chain structure of CdCl<sub>2</sub> complexing with polyvinyl alcohol due to diffusion restriction. One-dimensional structure of CdS was verified by high degree of luminescence polarization and Raman spectra behavior. It was observed that Raman spectrum of produced material is similar to spectrum of polyacetylene. This similarity disappears at impurities addition. Appearance of Raman band at 228 cm<sup>-1</sup> indicates formation of CdS chain structure. Resulting polyvinyl alcohol — CdS system has a structure of Little's high temperature superconductor.

**Keywords:** one-dimensional structures, inorganic polymers, conjugated polymers, hybrid polymeric complexes, polyvinyl alcohol, CdS.

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