COLIBABA, G., GONCEARENCO, E. et al. Obtaining of II-VI compound substrates with controlled electrical parameters and prospects of their application for nanoporous structures. In: Physica Status Solidi (C). 2014, Vol. 11, Issue 9/10, pp. 1404-1407. ISSN 1862-6351.

Substrates of II-VI semiconductor compounds may be widely used in fabrication of nanoporous matrices (NM), which give the possibility to obtain nanowires and nanotubes of various materials with good application prospects in various fields. The easiest and cost-effective method to obtain nanoporous matrices is electrochemical etching (ECE), which, however, depends on conductive properties of the substrates. The conditions of growing homogeneous ZnSe, ZnS, ZnSSe, ZnO, and ZnCdS single crystals by physical and chemical vapour transport methods are discussed. Based on the results of investigation of electrical, optical, and photoluminescence properties of the samples with various doping levels, the prospect of examined technology for manufacturing the substrates of these compounds with large area and controlled n-type electrical conductivity varied up to 20, 0.3, 0.3, 9, and 30 Ω-1cm-1, respectively, is estimated. Possible utilization of these substrates for preparation of NM by ECE is analyzed. The results of nanostructuring using various electrolytes are shown. The prospect of using ZnSe and ZnCdS compounds for manufacturing nanopore arrays with diameter down to 30 nm and nanopo-rous structures with a specific morphology on ZnO substrates is demonstrated. Technological limitations for fabrication of the similar structures on the basis of ZnS and ZnSSe substrates are also analyzed.