

Method of increasing the thermoelectric power factor PF of nanocrystalline tetrahedrite $\text{Cu}_{12}\text{Sb}_4\text{S}_{13}$ by introducing silver nanoparticles includes actions during which a reaction mixture of reagents is prepared, which includes copper compounds, antimony, elemental sulfur and a solvent. The reaction mixture is heated with its holding at a controlled temperature, cooled to room temperature. It is washed by centrifugation and $\text{Cu}_{12}\text{Sb}_4\text{S}_{13}$ powder is obtained, to which pre-synthesized silver nanoparticles with a solvent are added. The resulting suspension is dried and annealed for 60 min in an argon atmosphere. To prepare the reaction mixture, copper (II) acetate monohydrate is used as a source of copper, antimony - antimony (III) acetate, and also sodium tetrahydroborate, and triethylene glycol is used as a solvent, and the heating of the resulting solution is carried out at $t_1=220\text{ }^\circ\text{C}$ for 60 min. After cooling, isopropanol is used to wash the solution. To obtain $\text{Cu}_{12}\text{Sb}_4\text{S}_{13}$, the resulting precipitate is dried at $t_2=60\text{ }^\circ\text{C}$ for 24 h and annealed at $t_3=400\text{ }^\circ\text{C}$ for 1 h in an argon environment. When mixing $\text{Cu}_{12}\text{Sb}_4\text{S}_{13}$ with synthesized silver nanoparticles, isopropanol is used as a solvent. Dispersion is carried out using ultrasound for 10 min, annealing is carried out at $t_4=400\text{ }^\circ\text{C}$.