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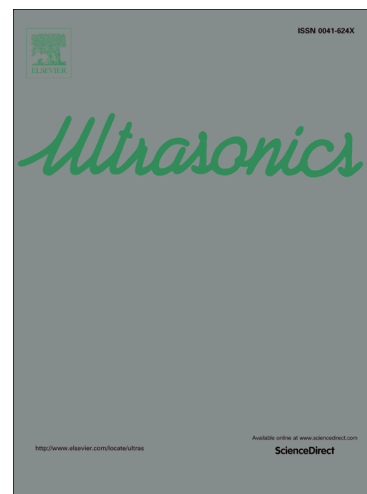
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**Sonochemical growth of nanomaterials in carbon nanotube**

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**Abstract:** Recent achievements in investigations of carbon nanotubes (CNTs) filled with ternary chalcogenides (antimony sulfide (SbS<sub>2</sub>) and antimony selenide (SbSe<sub>2</sub>)) are presented. Parameters of sonochemical encapsulation of nanocrystalline semiconducting ferroelectric SbS<sub>2</sub>-type materials in CNTs are reported. This low temperature technology is convenient, fast, efficient and environmentally friendly route for producing novel type of hybrid materials useful for nanodevices. Structure as well as optical and electrical properties of SbS<sub>2</sub>@CNTs and SbSe<sub>2</sub>@CNTs are described. Advantages of ultrasonic joining of such filled CNTs with metal microelectrodes are emphasized. The possible applications of these nanomaterials as gas sensors are shown.

**Keywords:** Carbon nanotubes; Antimony sulfide (SbS<sub>2</sub>); Antimony selenide (SbSe<sub>2</sub>); Sonochemistry; Encapsulation; Ultrasonic joining;

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