DS 12: Invited Schlecht

Time: Tuesday 9:30–10:15 Location: H8

Invited Talk DS 12.1 Tue 9:30 H8

Preparation methods and thermoelectric properties of PbTe based nanocomposites containing an inclusion phase — Denis Petri[1], Christoph Erk[2], •Sabine Schlecht[2], Ralf Hassdorf[3], Eckhard Müller[3], Gert Homm[4], Markus Piechotka[4], Florian Gather[4], and Peter J. Klar[4] — [1]Freie Universität Berlin, Institut für Chemie und Biochemie, Fabeckstrasse 34-36, 14195 Berlin — [2]Justus-Liebig-Universität Gießen, Institut für Anorganische und Analytische Chemie, Heinrich-Buff-Ring 58, 35392 Gießen — [3]DLR Köln, Linder Höhe, 51147 Köln — [4]Justus-Liebig-Universität Gießen, I.Physikalisches Institut, Heinrich-Buff-Ring 16, 35392 Gießen

With the growing interest of the automotive industies in medium temperature TEGs, lead telluride PbTe and its nanoscale structuring gets in the focus of further material developments. A comparative study on the preparation and the properties of PbTe based nanocomposites will be presented in this contribution. Ball-milling methods were applied for the preparation of different formally ternary and quaternary phases. The thermopower values and the electrical conductivities were evaluated for cold-pressed samples. The changes in the morphologies of the different composites after an annealing step were investigated by SEM and TEM methods. Diffusion processes at the interface of the inclusion and the PbTe matrix seem to play an important role.