Synthesis of zinc antimonides and fabrication of thin films for thermoelectric applications

Aarhus University have made an invention relating to a novel synthesis method for Zn₄Sb₃.

In addition, our research group have developed a method for easy fabrication of thin films of the material.

The technology is suited for thermoelectric applications used in for example sensors or as part of energy harvesting devices.

Compared to traditional thermoelectric materials, Zn₄Sb₃ does not contain tellurium and a mass production is therefore expected to be possible at a significantly lower price than using other materials.

The synthesis method will provide chemical pure homogeneous Zn₄Sb₃, with a very high figure of merit (zT) in the mid-temperature range (100-500°C).

The optimal operational temperature range of Zn₄Sb₃ is the mid-temperature range which is an area where current alternatives are not suitable. Thus, the technology is relevant in a long range of industrial processes operating in the mid-temperature range.

The technology is protected through a US patent (synthesis method) issued in August 2011 and in a European national phase patent application (thin film) filed in August 2012.

We are looking for a company interested in taking up a license in the technology.
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