# 凝聚态物理前沿论坛

## 第八十四讲

**题　　目：Complex Thermoelectric Materials**

**报 告 人：Prof. G. Jeffrey Snyder**
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**地　　点：固体所3号楼221会议室**

## 报告摘要：


The widespread use of thermoelectric generators has been limited by the low material efficiency of the thermoelectric material. A number of strategies for Complex Thermoelectric Materials with higher Thermoelectric figure of merit, zT, are being actively studied. (1) Complex electronic band structures provide mechanisms to achieve high zT in thermoelectric materials through band structure engineering. p-type PbTe and PbSe could achieve an extraordinary peak zT of about 2 at 750K. (2) Complex crystal structures that enable relatively low thermal conductivity have lead to several new classes of thermoelectric materials, such as $Ca_3AlSb_3$, $Ca_5Al_2Sb_6$ and $Yb_{14}AlSb_{11}$. (3) the incorporation of nanometer scale microstructure reduces thermal conductivity from long mean-free-path phonons.


## 报告人简介：

G. Jeffrey Snyder is a Professor of Materials Science and Engineering at Northwestern University. His interests are focused on engineering of electronic and thermal properties of materials, and is well known for his work on thermoelectric materials. He has developed new methods of electron band structure engineering, microstructure engineering of thermal properties developing simple models for complex materials and microstructures. Prof. Snyder has published over 400 articles, book chapters and patents. He has been recognized as a Highly Cited Researcher (Clarivate Analytics) each year since 2016 to 2019. He served as treasurer of the international thermoelectric society and vice president of the international thermoelectric academy.