NIMS Award 2020 受賞者

Hiroshi Julian Goldsmid 教授

ニューサウスウェールズ大学 名誉教授

研究分野

熱電エネルギー変換

経歴

1949	B.Sc. Honours II, Physics, Queen Mary College, University of London
1958	Ph.D. University of London
1966	D.Sc. University of London
1951～1964	General Electric Company Ltd., Central Research Laboratories
1964～1969	Reader in Solid State Physics, University of Bath
1968	Visiting Professor, University of Karlsruhe
1973	Visiting Professor of Applied Physics, University of Sussex
1977	Visiting Professor of Physics, University of Southampton
1982	Visiting Professor, IBM United Kingdom Laboratories
1985	Visiting Professor of Electrical Engineering, Southern Methodist University, Dallas, Texas
1969～1988	Professor of Experimental Physics, University of New South Wales
1987～1989	Commissioner of National Standards Commission
1989～1995	Chairman of National Standards Commission
1988～Present	Emeritus Professor, University of New South Wales

主な受賞歴

1959	Lightfoot medal of the Institute of Refrigeration.
2002	Golden Prize of the International Thermoelectric Academy.
2012	Outstanding Achievement Award of the International Thermoelectric Society.

主な論文/出版物

1) H. J. Goldsmid , R. W. Douglas. The use of semiconductors in thermoelectric refrigeration. British J. Appl. Physics, 5, 386 1954).
2) H. J. Goldsmid, The thermal conductivity of bismuth telluride, Proc. Physical Soc. B, **69,** 203 (1956).
3) H. J. Goldsmid, Heat conduction in bismuth telluride, Proc. Phys. Soc., **72**, 17 (1958).
4) H. J. Goldsmid, The electrical conductivity and thermoelectric power of bismuth telluride, Proc. Phys. Soc., **71**, 633 (1958).

5) H. J. Goldsmid, A. R. Sheard, D. A. Wright, The performance of bismuth telluride thermojunctions. British J. Appl. Physics, **9**, 365 (1958).
6) *H. J. Goldsmid. “Applications of Thermoelectricity”. Methuen, London (1960).
7) H. J. Goldsmid. Principles of thermoelectric devices. British. J. Appl. Physics, **11**, 209 (1960).
8) *J. R. Drabble and H. J. Goldsmid. “Thermal Conduction in Semiconductors”. Pergamon, London, (1961).
9) H. J. Goldsmid. The Ettingshausen figure of merit of bismuth and bismuth-antimony alloys. British J. Appl. Physics, **14**, 271 (1963).
10) *H. J. Goldsmid. “The Thermal Properties of Solids”, Routledge and Kegan Paul, London (1965).
11) H. J. Goldsmid, A. W. Penn. Boundary scattering of phonons in solid solutions. Physics Letters **27A**, 523 (1968).
12) *T. H. Beeforth, H. J. Goldsmid. “Physics of Solid State Devices”. Pion, London (1970).
13) C. Uher, H. J. Goldsmid. A comparison of thermomagnetic materials for use at room temperature. J. Phys.;D, Appl. Phys. **5**, 1478 (1972).
14) N. Savvides, H. J. Goldsmid. The effect of boundary scattering on the high-temperature thermal conductivity of silicon. J. Phys. C, (Solid State Phys.) **6**, 1701 (1973**).**
15) C. Uher , H.J. Goldsmid. Separation of the electronic and lattice thermal conductivities in bismuth crystals. Phys. Stat. Solidi (b). **65**, 765 (1974).
16) N. Savvides, H. J. Goldsmid. Boundary scattering of phonons in fine-grained hot-pressed Ge-Si alloys. I. The dependence of lattice thermal conductivity on grain size and porosity. J. Phys. C; Solid State Phys. **13**, 4657 (1980).
17) N. Savvides, H. J. Goldsmid. Boundary scattering of phonons in fine-grained hot-pressed Ge-Si alloys. II. Theory. J. Phys. C; Solid State Phys. **13**, 4671 (1980).
18) H. J. Goldsmid., K. K. Gopinathan, D. N. Matthews, K. N. R. Taylor, C. A. Baird, High T_c superconductors as passive thermo-elements. J. Phys. D; Applied Phys. **21**, 344 (1980).
19) *H. J. Goldsmid. “Ëlectronic Refrigeration” . Pion, London (1986).
20) H. J. Goldsmid, J. W. Sharp, Estimation of the thermal band gap of a semiconductor from Seebeck measurements. J. Electronic Materials, **28**, 869 (1999)
21) *G. S. Nolas, J. Sharp, H. J. Goldsmid, “Thermoelectrics. Basic Principles and New Materials Developments”. Springer, Heidelberg (2001).
22) J. W. Sharp, S. J. Poon, H. J. Goldsmid. Boundary scattering and the thermoelectric figure of merit. Phys. Stat. Solidi (a). **187**, 507 (2001).
23) G. S. Nolas, H. J. Goldsmid. The figure of merit of amorphous thermoelectrics. Phys. Stat. Solidi (a). **194**, 271 (2002).
24) H. J. Goldsmid. Synthetic transverse thermoelements made from porous bismuth telluride and single crystal bismuth. Phys. Stat. Solidi (a). **1**-4 (2008).
25) H. J. Goldsmid, Bismuth telluride and its alloys as materials for thermoelectric generation, Materials, **7**, 2577 (2014).
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27) *H. J. Goldsmid, Introduction to Thermoelectricity, Second Edition, Springer, Heidelberg (2016).
28) *H. J. Goldsmid “The Physics of Thermoelectric Energy Conversion”, Morgan and Claypool, IOP, Bristol (2017).