

NIMS Award 2020 Winner

Prof. Kunihiro Koumoto

Professor Emeritus, Nagoya University
Senior Researcher, Nagoya Industrial Science Research Institute
Distinguished Adjunct Professor, King Abdulaziz University



Research Field

Inorganic materials science

History

1974	B.S. The University of Tokyo, Dep't of Synthetic Chemistry
1976	M.S. The University of Tokyo, Dep't of Industrial Chemistry
1979	Ph.D. The University of Tokyo, Dep't of Ind. Chemistry
1979~1982	Research Associate, The University of Tokyo, Dep't of Ind. Chemistry
1982~1986	Lecturer, The University of Tokyo, Dep't of Ind. Chemistry
1986~1992	Associate Professor, The University of Tokyo, Dep't of Ind. Chemistry
1992~2015	Professor, Nagoya University, Dep't of Applied Chemistry
2003~2007	Visiting Professor, Akita University, Faculty of Engineering Resources
2011~2013	Director, Research Center for Materials Backcasting Technology, NU
2015~Present	Professor Emeritus, Nagoya University
2015~2018	Fellow, Toyota Physical and Chemical Research Institute
2016~2020	Visiting Professor, Kyushu University
2017~2019	International Scholar, Kyung Hee University, Republic of Korea
2017~Present	Distinguished Adj. Professor, King Abdulaziz University, Saudi Arabia
2018~Present	Senior Researcher, Nagoya Industrial Science Research Institute
2018~Present	Member of the Board, TOYOTA TSUSHO CORPORATION

Major Awards

1993	Richard M. Fulrath Pacific Award
2000	Academic Achievement Award, the Ceramic Society of Japan
2008	The Commendation for Science and Technology by the MEXT, Prize for Science and Technology (Research Category)
2013	Medal with Purple Ribbon, The Emperor of Japan
2013	The Thermoelectrics Society of Japan Award
2018	Outstanding Achievement Award, the International Thermoelectric Society

Major Publications/Books

- 1) H. Ohta, S. W. Kim, S. Ohta, K. Koumoto et al., "Giant thermoelectric response originating from 2DEG localized in a unit cell layer of SrTiO₃", *Nature Mater.*, **6**, 129-134 (2007).
- 2) N. Wang, N. H. Park, K. Koumoto et al., "A novel high-performance photovoltaic-thermoelectric hybrid device", *Energy Environ. Sci.*, **4**, 3676-3679 (2011).
- 3) "Thermoelectric Nanomaterials" edited by K. Koumoto and T. Mori, Springer Series in

Materials Science 182, Springer-Verlag Berlin Heidelberg (2013).

- 4) C. L. Wan, K. Koumoto et al., "Flexible n-type thermoelectric materials by organic intercalation of layered transition metal dichalcogenide TiS_2 ", *Nature Mater.*, **14**, 622-627 (2015).
- 5) C. L. Wan, R. G. Yang, K. Koumoto et al., "Dielectric Mismatch Mediates Carrier Mobility in Organic-Intercalated Layered TiS_2 ", *Nano Lett.*, **15**, 6302-6308 (2015).
- 6) R. Tian, K. Koumoto et al., "Solution-processed TiS_2 /organics hybrid superlattice film towards flexible thermoelectric devices", *J. Mater. Chem. A*, **5**, 564-570 (2017).
- 7) C. L. Wan, R. Tian, K. Koumoto et al., "Ultrahigh thermoelectric power factor in n-type flexible hybrid inorganic-organic superlattice", *Nature Commun.*, **8**, 1024 (2017).
- 8) R. Tian, C. Wan, K. Koumoto, "Chapter 8 Thermoelectric Materials by Organic Intercalation", in *Organic Thermoelectric Materials* edited by Z. Lin and M. He, The Royal Society of Chemistry, Cambridge, UK (2019) pp.246-273.