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Biography

October 2022 – current: Ph.D. Course, Graduate School Information Science and Technology, Hokkaido University (Supervisor: Prof. Hiromichi Ohta)

March 2020 – February 2022: Master's Course, Department of Physics, Pusan National University (Supervisor: Prof. Hyungjeen Jeon)

March 2014 – February 2020: Bachelor, Department of Physics, Pusan National University (Supervisor: Prof. Hyungjeen Jeon)

Original papers (4)

[4] **Kungwan Kang**,* Yuqiao Zhang, Jingyuan Yan, Chuchu Yang, Bin Feng, Naoya Shibata, Yuichi Ikuhara, Ahrong Jeong, and Hiromichi Ohta*, "Decomposition Behavior of a Thermoelectric Oxide at High-Temperatures and Its Impact on the Thermoelectric Properties", **ACS Appl. Energy Mater.** XX, XXXX-XXXX (2026). (January 23, 2026) (DOI: [10.1021/acsaem.5c03826](https://doi.org/10.1021/acsaem.5c03826))

[3] **Kungwan Kang**, Fumiaki Kato, Akitoshi Nakano, Ichiro Terasaki*, Takashi Endo, Yasutaka Matsuo, Hyungjeen Jeon*, and Hiromichi Ohta*, "Fabrication and Thermoelectric Properties of Freestanding Ba_{1/3}CoO₂ Single Crystalline Films", **ACS Appl. Electron. Mater.** 5, 5749-5754 (2023). (October 16, 2023)

(DOI: [10.1021/acsaelm.3c01129](https://doi.org/10.1021/acsaelm.3c01129))

[2] Binjie Chen*, **Kungwan Kang**, Hyoungjeen Jeon, Yuqiao Zhang, Jinghuang Lin, Bin Feng, Yuichi Ikuhara, Sena Hoshino, Katsuyuki Matsunaga, and Hiromichi Ohta*, "Orthorhombic Distortion-induced Anatase-like Optoelectronic Properties of Rutile TiO_2 ", *J. Appl. Phys.* 132, 185301 (2022). (November 8, 2022) (DOI: [10.1063/5.0119725](https://doi.org/10.1063/5.0119725))

[1] **Kungwan Kang**, Jinho Byun, Mijung Jeon, Giryeon Jo, Youn-Kyoung Baek, Jaekwang Lee, and Hyoungjeon Jeon, "Effect of sintering time on electronic properties of strontium hexaferrite", *Ceram. Int.* 48, 12476-12482 (2022). (DOI: [10.1016/j.ceramint.2022.01.113](https://doi.org/10.1016/j.ceramint.2022.01.113))

Presentations (18)

[18] **Kungwan Kang**, Yuqiao Zhang, Jingyuan Yan, Chuchu Yang, Bin Feng, Naoya Shibata, Yuichi Ikuhara, Ahnong Jeong, and Hiromichi Ohta, "Origin of degradation in thermoelectric performance of $\text{Ba}_{1/3}\text{CoO}_2$ at high temperatures", [Japan-Taiwan-India Symposium on Materials & Information Science for Future Electronics Jointed with the 26th RIES-HOKUDAI International Symposium "共"\[kyou\] & 5+2 Joint Symposium](#), Sapporo, November 26-27, 2025 (Poster)

[17] **Kunwang Kang**, Yuqiao Zhang, Chuchu Yang, Bin Feng, Yuichi Ikuhara, Ahnong Jeong, Takashi Endo, Yasutaka Matsuo, and Hiromichi Ohta, "Phase decomposition of thermoelectric $\text{Ba}_{1/3}\text{CoO}_2$ films at high temperatures", [第61回 応用物理学会北海道支部学術講演会](#), 北海道大学, 札幌, 2025.11.1-2.

[16] **Kunwang Kang**, Yuqiao Zhang, Jingyuan Yan, Chuchu Yang, Bin Feng, Naoya Shibata, Yuichi Ikuhara, Ahnong Jeong, and Hiromichi Ohta, "Origin of degradation in thermoelectric performance of $\text{Ba}_{1/3}\text{CoO}_2$ at high temperatures", [第11回 北大・部局横断シンポジウム](#), 北海道大学, 札幌, 2025年10月2日 (Poster).

[15] **Kunwang Kang**, Yuqiao Zhang, Chuchu Yang, Bin Feng, Yuichi Ikuhara, Ahnong Jeong, Takashi Endo, Yasutaka Matsuo, and Hiromichi Ohta, "Phase decomposition of thermoelectric $\text{Ba}_{1/3}\text{CoO}_2$ films at high temperatures", [第86回 応用物理学会秋季学術講演会](#), 名城大学天白キャンパス+オンライン, 2025.9.7-10.

[14] **Kungwan Kang**, Diwen Chen, Masato Imaizumi, Akitoshi Nakano, Chuchu Yang, Yuqiao Zhang, Yusaku Magari, Takashi Endo, Bin Feng, Yasutaka Matsuo, Yuichi Ikuhara, Ichiro Terasaki, Hiromichi Ohta, "Difficulty of Bulk Ceramic Fabrication of $\text{Ba}_{1/3}\text{CoO}_2$ Showing High Thermoelectric ZT ", [2024年第71回 応用物理学会春季学術講演会](#), 東京都市大学 世田谷キャンパス, 東京, 2024年3月22日-25日.

- [13] **Kungwan Kang**, Fumiaki Kato, Akitoshi Nakano, Ichiro Terasaki, Hyoungeen Jeen, and Hiromichi Ohta, "Fabrication and Thermoelectric Properties of Freestanding $\text{Ba}_{1/3}\text{CoO}_2$ Single Crystalline Films", [第 59 回 応用物理学会北海道支部 / 第 20 回 日本光学会北海道支部 合同学術講演会](#), 北海道大学, 札幌市, 2024.1.6 – 7.
- [12] **Kungwan Kang**, Fumiaki Kato, Akitoshi Nakano, Ichiro Terasaki, Hyoungeen Jeen, Hiromichi Ohta, "[B1-O301-01] Direct Measurement of In-Plane Thermal Conductivity for Freestanding $\text{Ba}_{1/3}\text{CoO}_2$ and $\text{Sr}_{1/3}\text{CoO}_2$ Films", [MRM2023](#), Kyoto, Japan, December 11-16, 2023. (oral)
- [11] **Kungwan Kang**, Fumiaki Kato, Akitoshi Nakano, Ichiro Terasaki, Takashi Endo, Yasutaka Matsuo, Hyoungeen Jeen, Hiromichi Ohta, "Fabrication and Thermoelectric Properties of Freestanding $\text{Ba}_{1/3}\text{CoO}_2$ Single Crystalline Films", [The 2023 RIES-CEFMS \(Research Institute for Electronic Science – Center for Emergent Functional Matter Science\) Joint International Symposium](#), Rusutsu Resort Hotel and Convention Center, Japan, December 7-8, 2023. (Poster)
- [10] **Kungwan Kang**, Fumiaki Kato, Akitoshi Nakano, Ichiro Terasaki, Takashi Endo, Yasutaka Matsuo, Hyoungeen Jeen, and Hiromichi Ohta, "Preparation and Thermoelectric Properties of Freestanding $\text{Ba}_{1/3}\text{CoO}_2$ Single Crystalline Films", [The 24th RIES-HOKUDAI International Symposium 開 \[kai\]](#), Hokkaido University, Sapporo, Japan, December 6-7, 2023.
- [9] **Kungwan Kang**, Fumiaki Kato, Akitoshi Nakano, Ichiro Terasaki, Takashi Endo, Yasutaka Matsuo, Hyoungeen Jeen, and Hiromichi Ohta, "Preparation and thermoelectric properties of freestanding $\text{Ba}_{1/3}\text{CoO}_2$ single crystalline films", [The Mini-Workshop on Functional Materials Science \(Organizers' meeting\)](#), Sapporo, Japan, December 1-2, 2023. (Poster)
- [8] **Kungwan Kang**, Fumiaki Kato, Akitoshi Nakano, Ichiro Terasaki, Takashi Endo, Yasutaka Matsuo, Hyoungeen Jeen, and Hiromichi Ohta, "Fabrication and thermoelectric properties of freestanding $\text{Ba}_{1/3}\text{CoO}_2$ single crystalline films", [第 49 回固体イオニクス討論会](#), 北海道大学フロンティア応用科学研究棟, 2023 年 11 月 15 日
- [7] **Kungwan Kang**, Fumiaki Kato, Akitoshi Nakano, Ichiro Terasaki, Takashi Endo, Yasutaka Matsuo, Hyoungeen Jeen, and Hiromichi Ohta, "Fabrication and Thermoelectric Properties of Freestanding $\text{Ba}_{1/3}\text{CoO}_2$ Single Crystalline Films", [14th ISAJ Annual Symposium \(Integrated Science for a Sustainable Society\)](#), Hokkaido University, Sapporo, November 14, 2023
- [6] **Kungwan Kang**, Fumiaki Kato, Akitoshi Nakano, Ichiro Terasaki, Hyoungeen Jeen, and Hiromichi Ohta, "Direct Thermal Conductivity Measurement for Freestanding $\text{Ba}_{1/3}\text{CoO}_2$ and $\text{Sr}_{1/3}\text{CoO}_2$ Films in the In-plane direction", [29th](#)

[International Workshop on Oxide Electronics \(iWOE29\)](#), Busan, Korea, October 15-18, 2023. (poster) **Best Presentation Award**

[5] **Kungwan Kang**, Fumiaki Kato, Akitoshi Nakano, Ichiro Terasaki, Hyungjeen Jeon, Hiromichi Ohta, "Direct Measurement of In-Plane Thermal Conductivity for Freestanding Oxide Films", [第 84 回 応用物理学会秋季学術講演会「イオントロニクスにおける酸化物・カルコゲナイトの新機能」](#), 熊本城ホールほか 3 会場, 2023 年 9 月 19 日-23 日(ポスター)

[4] **Kungwan Kang**, Fumiaki Kato, Ichiro Terasaki, Hyungjeen Jeon, and Hiromichi Ohta, "Direct measurement of in-plane thermal conductivity for freestanding $\text{Ba}_{1/3}\text{CoO}_2$ films", [The 4th Workshop on Functional Materials Science \(FMS2023\)](#), Busan, South Korea, June 18-21, 2023. (poster) **Outstanding Presentation Award**

[3] **Kungwan Kang**, "Effect of thermal annealing on electronic properties and microstructure of polycrystalline SrFeO ", 2021 dielectric material alliance symposium, Busan, Korea (Feb. 2021) (Poster)

[2] **Kungwan Kang**, "Effect of thermal annealing on electronic properties and microstructure of polycrystalline SrFeO ", 2020 KPS Fall Meeting, Korea (Nov. 2020) (Oral)

[1] **Kungwan Kang**, "Effect of reductive annealing on magnetic properties of polycrystalline SrFeO ", KPS Busan-Ulsan_Gyeongnam Branch, Busan, Korea (Jun. 2019) (Poster)

Press report (2)

[1] "高性能熱電材料「 $\text{Ba}_{1/3}\text{CoO}_2$ 」の単結晶化に成功——サファイア基板上から単結晶膜を剥離 北海道大学ら", [fabcross エンジニア](#), 2023.10.24

[2] "熱電変換材料としての実用化に一步 北大などの研究 G が実用的な発電材料の単結晶化に成功", [文教速報デジタル版](#), 2023.10.25

Award (2)

[2] Kungwan Kang, **Best Presentation Award**, [29th International Workshop on Oxide Electronics \(iWOE29\)](#), Busan, Korea, October 15-18, 2023. (Poster)

[1] Kungwan Kang, **Outstanding Presentation Award**, [The 4th Workshop on Functional Materials Science \(FMS2023\)](#), Busan, South Korea, June 18-21, 2023.