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Home town Chengdu, China

Biography

April 2019 – current: Ph. D candidate, in Graduate School of Information Science and Technology, Hokkaido University (Supervisor: Prof. Hiromichi Ohta)

April 2017 – March 2019: M.E., in Graduate School of Chemical Sciences and Engineering, Hokkaido University (Supervisor: Prof. Yuji Masubuchi, Laboratory of Structural Inorganic Chemistry)

October 2016 – March 2017: Research Student, in School of Engineering, Hokkaido University

July 2015 – August 2016: Researcher, Emei semiconductor material research institute, China

September 2011 – June 2015: B.E., in College of Materials and Chemistry & Chemical Engineering, Chengdu University of Technology, China, Thesis title:

“Synthesis and Characterization of $LiNi_{0.5}Co_{0.2}Mn_{0.3}O_2$ Cathode Material for Lithium Ion Battery”

Original Papers (7)

[7] Xi Zhang*, Gowoon Kim, **Qian Yang**, Jiake Wei, Bin Feng, Yuichi Ikuhara, and Hiromichi Ohta*, “Solid-State Electrochemical Switch of Superconductor-Metal-Insulators”, *ACS Appl. Mater. Interfaces* 13, 54204-54209 (2021). (November 4, 2021) (DOI: 10.1021/acsami.1c17014)

[6] **Qian Yang***, Joonhyuk Lee, Hyoungjeen Jeen, Hai Jun Cho, and Hiromichi Ohta*, “Solid-State Electrochemical Protonation of $SrCoO_{2.5}$ into $H_xSrCoO_{2.5}$ (x = 1, 1.5 and 2)”, *ACS Appl. Electron. Mater.* 3, 3296–3300 (2021). (July 14, 2021) (DOI: 10.1021/acsaelm.1c00505)

[5] **Qian Yang***, Hai Jun Cho, Hyoungjeen Jeen, and Hiromichi Ohta*, “Solid-State Electrochemical Redox Control of the Optoelectronic Properties for $SrFeO_x$ Thin Films”, *J. Appl. Phys.* 129, 215303 (2021). (June 2, 2021) (DOI: 10.1063/5.0053939)

[4] **Qian Yang**, Joonhyuk Lee, Bin Feng, Yuichi Ikuhara, Gowoon Kim, Hai Jun Cho, Hyoungjeen Jeen*, and Hiromichi Ohta*, “Unusually large thermopower change from +330 μV K^{-1} to -185 μV K^{-1} of brownmillerite $SrCoO_{2.5}$“, *ACS Appl. Electron. Matter.* 2, 2250-2256 (2020). (July 6, 2020) (DOI: 10.1021/acsaelm.0c00427)

[3] **Qian Yang**, Yuji Masubuchi*, Mikio Higuchi, “Synthesis of perovskite-type oxynitrides $SrNb(O,N)_3$ and $CaTa(O,N)_3$ usingcarbon nitride”, *Ceramics International* **46**, 13941-13944 (2020). (DOI: 10.1016/j.ceramint.2020.02.191) (published online Feb. 20, 2020)

[2] **Qian Yang**, Hai Jun Cho, Hyoungjeen Jeen*, and Hiromichi Ohta*, "Macroscopic visualization of fast electrochemical reaction of $SrCoO_x$ oxygen sponge", *Adv. Mater. Interfaces* **6**, 1901260 (2019). (DOI: 10.1002/admi.201901260) (October 23, 2019) The Korea-Japan bilateral program, International collaboration **arXiv** **Detail** **Press release** **Outside Back Cover** **Five-Star Alliance** **RIES-Hokkaido University**

[1] Dawei Luo, **Qian Yang**, Junfeng Li, and Jianping Long, "Research and preparation of high quality and high utilization polycrystalline silicon ingot", *Journal of Optoelectronics and Advanced Materials* **17**, 839-845 (2015).

Presentations (22)

[22] **Qian Yang**, Joonhyuk Lee, Hyoungjeen Jeen, Hai Jun Cho, and Hiromichi Ohta, "Solid-State Electrochemical Protonation Induced Phase Transition from $SrCoO_{2.5}$ into $H_xSrCoO_{2.5}$ (x = 1, 1.5 and 2)", The 18th Thin Film Materials & Devices Meeting, オンライン, 2021.11.11-12 **Student Award**

[21] **Q. Yang**, H.J. Cho, H. Jeen, H Ohta, "Solid-state electrochemical redox control of the optoelectronic properties for $SrFeO_x$ thin films", 第 82 回 応用物理学会秋季学術講演会, online, 2021.9.10-13.

[20] **Q. Yang**, J. Lee, H. Jeen, J. Wei, B. Feng, Y. Ikuhara, H.J. Cho, and H. Ohta, "Electrochemical Redox reaction of $SrCoO_{2.5}$ films using YSZ oxide ion conductor", 2021 年 第 68 回 応用物理学会春季学術講演会, online, 2021.3.16-19.

[19] **Qian Yang**, Joonhyuk Lee, Hyoungjeen Jeen, Bin Feng, Yuichi Ikuhara, Hai Jun Cho, and Hiromichi Ohta, "Solid-state Electrochemical Protonation / Oxidation of $SrCoO_x$ Films", Electronic Materials and Applications 2021 (EMA2021), virtual, Jan. 19-22, 2021.

[18] **Q. Yang**, J. Lee, H. Jeen, B. Feng, Y. Ikuhara, H.J. Cho, and H. Ohta, "Realization of $SrCoO_2$ epitaxial films by electrochemical reduction using YSZ solid electrolyte", 第 56 回 応用物理学会北海道支部/第 17 回日本光学会北海道支部合同学術講演会, online, 2021.1.9-10.

[17] **Qian Yang**, Joonhyuk Lee, Hyoungjeen Jeen, Bin Feng, Yuichi Ikuhara, Hai Jun Cho, and Hiromichi Ohta, "Electrochemical Redox Control of $SrCoO_x$ Epitaxial Films using YSZ as the Solid Electrolyte (P44)", The 21st RIES-Hokudai International Symposium 間 [ma], online, December 10-11, 2020 (poster). **Poster Award**

[16] **Qian Yang**, Joonhyuk Lee, Hyoungjeen Jeen, Bin Feng, Yuichi Ikuhara, Hai Jun Cho, and Hiromichi Ohta, "Electrochemical Protonation / Oxidation of $SrCoO_{2.5}$ Films using CAN as the Solid Electrolyte", 薄膜材料デバイス研究会 第 17 回研究会「薄膜デバイスの原点」, November 5-6, 2020.

[15] **Qian Yang**, Hai Jun Cho, Hyoungjeen Jeen, Hiromichi Ohta, "Electrochemical Manipulation of the Electron Transports of $SrCoO_x$ Epitaxial Films", Pacific Rim Meeting on Electrochemical and Solid State Science (PRiME 2020), October 4-9, 2020.

[14] **Qian Yang**, Bin Feng, Yuichi Ikuhara, Hyoungjeen Jeen, Hai Jun Cho, Hiromichi Ohta, "Solid-State Electrochemical Protonation/Oxidation of Oxygen Sponge $SrCoO_{2.5}$ Films", 2020 年 第 81 回応用物理学会秋季学術講演会, online, September 8-11, 2020.

[13] **楊 倩**, Hai Jun Cho, Hyoungjeen Jeen, 太田裕道, "情報記憶材料 $SrCoO_x$ 薄膜における電気化学酸化反応の巨視的可視化", 化学系学協会北海道支部 2020 年冬季研究発表会, 北海道大学（北海道, 札幌市）, 2020 年 1 月 28 日-29 日

[12] **楊 倩**, Hai Jun Cho, Hyoungjeen Jeen, 太田裕道, "熱電特性と導電性 AFM による $SrCoO_x$ の電気化学反応の巨視的可視化", 第 55 回応用物理学会北海道支部/第 16 回日本光学会北海道支部合同学術講演会, 北海道大学（北海道, 札幌市）, 2020 年 1 月 11 日-12 日.

[11] **Qian Yang**, Joonhyuk Lee, Bin Feng, Yuichi Ikuhara, Gowoon Kim, Hai Jun Cho, Hyoungjeen Jeen, and Hiromichi Ohta, "Thermopower detection of electronic structure modulation of $SrCoO_{2.5}$ film on lattice mismatched substrates", The 3rd Workshop on Functional Materials Science, Sapporo, Japan, December 18th-20th, 2019. (Poster) 物質デバイス領域共同研究拠点, The Korea-Japan bilateral program, International collaboration

[10] **Qian Yang**, Hai Jun Cho, Hyoungjeen Jeen, and Hiromichi Ohta, "Macroscopic visualization of fast electrochemical reaction of $SrCoO_x$ oxygen sponge", RIES-NCTU Workshop, Hokkaido University, Sapporo, Japan,

December 3-4, 2019. (Poster) The Korea-Japan bilateral program, International collaboration

[9] **Qian Yang**, Hai Jun Cho, Hyoungjeen Jeen, and Hiromichi Ohta, "Macroscopic visualization of fast electrochemical reaction of $SrCoO_x$ oxygen sponge", The 20th RIES-HOKUDAI International Symposium, Hokkaido University, Sapporo, Japan, December 2-3, 2019. (Poster) The Korea-Japan bilateral program, International collaboration

[8] **楊 倩**, Hai Jun Cho, Hyoungjeen Jeen, 太田裕道, "$SrCoO_x$酸素スポンジの高速電気化学反応の巨視的可視化", 令和元年日本セラミックス協会 東北北海道支部研究発表会, 新潟大学工学部, 新潟県新潟市, 2019 年 11 月 8 日-9 日（口頭発表） The Korea-Japan bilateral program, International collaboration

[7] **楊 倩**, ジョ ヘジュン, Joonhyuk Lee, 馮 斌, 幾原雄一, Hyoungjeen Jeen, 太田裕道, "ブラウンミラライト型 $SrCoO_{2.5}$ 薄膜の異常熱電能", 令和元年日本セラミックス協会 東北北海道支部研究発表会, 新潟大学工学部, 新潟県新潟市, 2019 年 11 月 8 日-9 日（ポスター発表） 物質デバイス領域共同研究拠点, The Korea-Japan bilateral program, International collaboration **Excellent Presentation Award**

[6] **Qian Yang**, Hai Jun Cho, Hyoungjeen Jeen, Hiromichi Ohta, "Anomalous Thermopower Behaviour of Brownmillerite $SrCoO_{2.5}$ Epitaxial Films", 26th International Workshop on Oxide Electronics (iWOE26), Kyoto, Japan, Sep. 29 – Oct. 2, 2019. (Poster) The Korea-Japan bilateral program, International collaboration

[5] **楊 倩**, Hai Jun Cho, Hyoungjeen Jeen, 太田裕道, "$SrCoO_{2.5}$ エピタキシャル薄膜の電気化学酸化と電子輸送特性", 2019 年 第 80 回応用物理学会秋季学術講演会, 北海道大学札幌キャンパス, 北海道札幌市, 2019 年 9 月 18 日-21 日. The Korea-Japan bilateral program, International collaboration

[4] **Qian Yang**, Yuji Masubuchi, Mikio Higuchi, "Low temperature formation of perovskite-type oxynitrides $AB(O,N)_3$ (A = Sr, Ca; B = Nb, Ta) using carbon nitride", 第 57 回セラミックス基礎科学討論会, 仙台国際センター(仙台), January 16-17, 2019

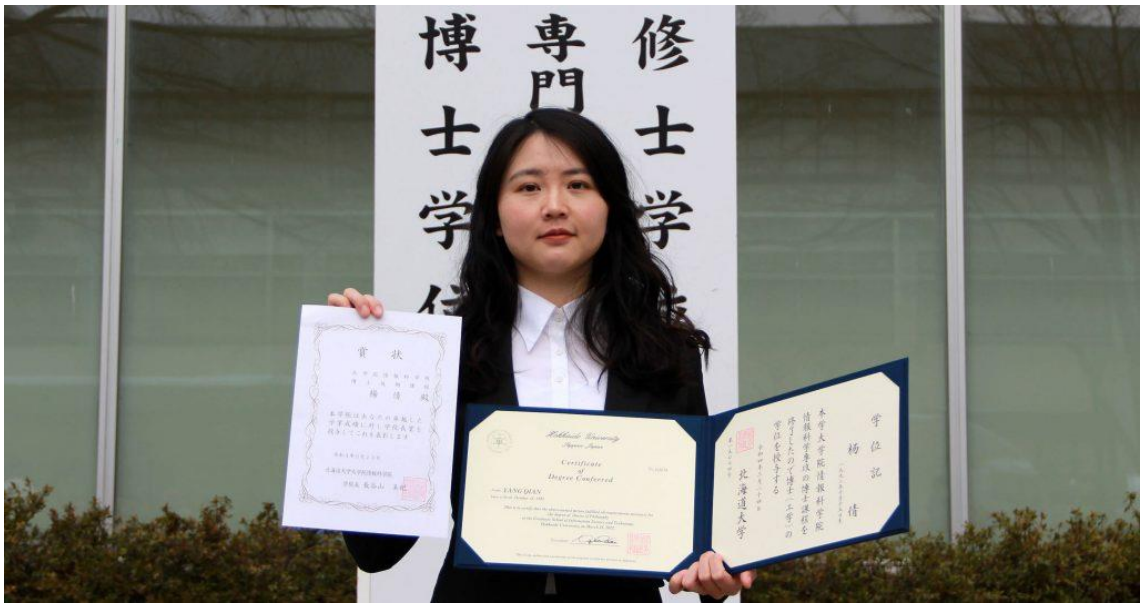
[3] **Qian Yang**, Yuji Masubuchi, Mikio Higuchi, "Synthesis of perovskite-type oxynitrides $AB(O,N)_3$ (A = Sr, Ca; B = Nb, Ta) using C_3N_4 as the nitrogen source", The 19th RIES-HOKUDAI International Symposium 組[So], 定山渓ビューホテル(北海道札幌市), December 11-12, 2018 (Poster).

[2] **Qian Yang**, Yuji Masubuchi, Mikio Higuchi, “Synthesis of perovskite-type oxynitrides $AB(O,N)_3$ (A = Sr, Ca, B = Nb, Ta) using C_3N_4 as the nitrogen source”, 平成 30 年度日本セラミックス協会東北北海道支部研究発表会, 日本大学(福島県郡山市), November 2-3, 2018 (Poster)

[1] **Qian Yang**, Yuji Masubuchi, Mikio Higuchi, “Synthesis of perovskite-type $SrNb(O,N)_3$ using $Sr_2Nb_2O_7$ and C_3N_4“, 日本セラミックス協会 2018 年年会, 東北大学(宮城県仙台市), March 15-17, 2018

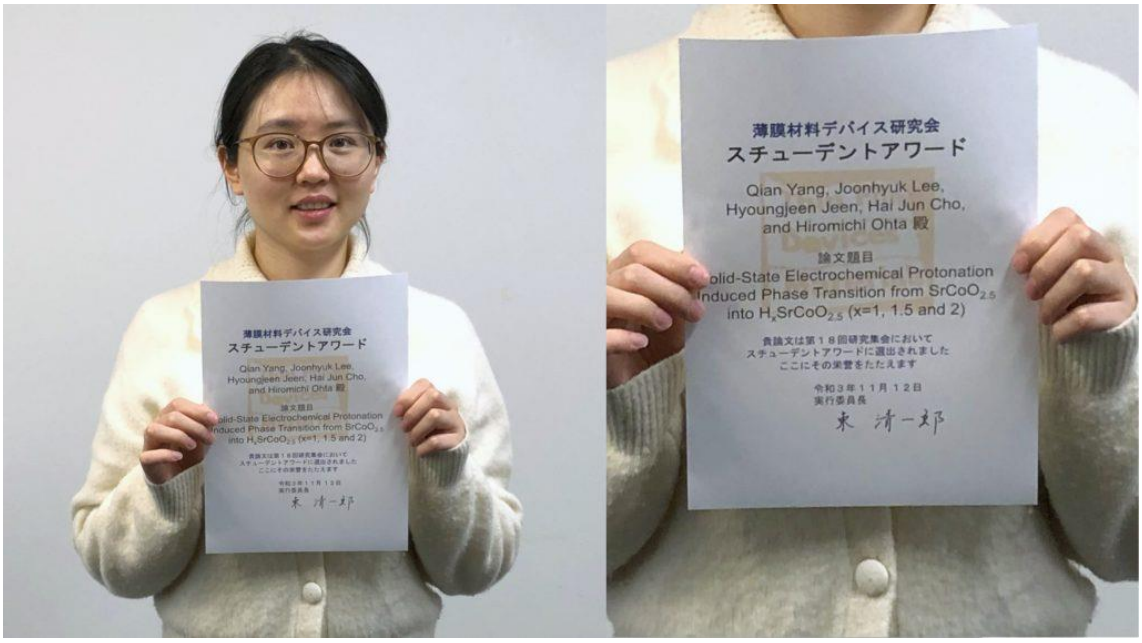
Awards (7)

[7] **FY2021 Dean’s Award**, Graduate School of Information Science and Technology, Hokkaido University (2022.03.24)



[6] **Ohtsuka Memorial Award**, Hokkaido University (2022.03.17)

[5] **Student Award**, (2021.11.12), **Qian Yang**, Joonhyuk Lee, Hyoungjeen Jeen, Hai Jun Cho, and Hiromichi Ohta, "Solid-State Electrochemical Protonation Induced Phase Transition from $SrCoO_{2.5}$ into $H_xSrCoO_{2.5}$ (x = 1, 1.5 and 2)", 薄膜材料デバイス研究会 第 18 回研究集会 in 京都, online, 2021.11.11-12 (oral). **Certificate**



[4] **Poster Award**, (2020.12.11), **Qian Yang**, Joonhyuk Lee, Hyoungjeen Jeen, Bin Feng, Yuichi Ikuhara, Hai Jun Cho, and Hiromichi Ohta, "Electrochemical Redox Control of $SrCoO_x$ Epitaxial Films using YSZ as the Solid Electrolyte (P44)", The 21st RIES-Hokudai International Symposium 間 [ma], online, December 10-11, 2020 (poster). **Photo**, **Certificate**

[3] **Excellent Presentation Award** in 2019 Meeting of the Ceramics Society of Japan Tohoku-Hokkaido Branch, "Anomalous Thermopower of Brownmillerite $SrCoO_{2.5}$ Thin Films (2P21)", **Qian Yang**, Hai Jun Cho, Joonhyuk Lee, Bin Feng, Yuichi Ikuhara, Hyoungjeen Jeen, and Hiromichi Ohta, Niigata University (Igarashi Campus, Niigata, Japan), November 8th-9th, 2019 **Photo 1** **Photo 2** **Certificate**

[2] College Scholarship for outstanding student (Top 8 in 57) 2013-2014 (Chengdu University of Technology, China)

[1] College Scholarship for outstanding student leaders (Top 6 in 57) 2012-2013 (Chengdu University of Technology, China)

Patent (1)

[1] Hiromichi Ohta, Qian Yang, Hai Jun Cho, 特願 2021-164181, October 5, 2021

Press report (18)

[18] グノシー, "北大、電気スイッチ 1 つで絶縁体と超伝導体の繰り返し切り替えに成功" (2021.11.22)

[17] 楽天 Infoseek News, "北大、電気スイッチ 1 つで絶縁体と超伝導体の繰り返し切り替えに成功" (2021.11.22)

[16] 気になる車・バイクニュース, "北大、電気スイッチ 1 つで絶縁体と超伝導体の繰り返し切り替えに成功" (2021.11.22)

[15] NEWS PICKS, "北大、電気スイッチ 1 つで絶縁体と超伝導体の繰り返し切り替えに成功" (2021.11.22)

[14] しげろうたろうのブログ, "北大、電気スイッチ 1 つで絶縁体と超伝導体の繰り返し切り替えに成功" (2021.11.23)

[13] じもにゅー北海道, "北大、電気スイッチ 1 つで絶縁体と超伝導体の繰り返し切り替えに成功" (2021.11.22)

[12] ニコニコニュース, “北大、電気スイッチ 1 つで絶縁体と超伝導体の繰り返し切り替えに成功” (2021.11.22)

[11] fabcross for エンジニア, “電気スイッチ一つで絶縁体を高超伝導体に繰り返し切り替え――全固体素子で液漏れの心配なし 北海道大” (2021.11.22)

[10] マイナビニュース, “北大、電気スイッチ 1 つで絶縁体と超伝導体の繰り返し切り替えに成功” (2021.11.22)

[9] エキサイトニュース, “北大、電気スイッチ 1 つで絶縁体と超伝導体の繰り返し切り替えに成功” (2021.11.22)

[8] Mapion ニュース, “北大、電気スイッチ 1 つで絶縁体と超伝導体の繰り返し切り替えに成功” (2021.11.22)

[7] dmenu ニュース, “北大、電気スイッチ 1 つで絶縁体と超伝導体の繰り返し切り替えに成功” (2021.11.22)

[6] ニュースコレクト, “北大、電気スイッチ 1 つで絶縁体と超伝導体の繰り返し切り替えに成功” (2021.11.22)

[5] “次世代機能性薄膜の動向(1) ～電気・電子機能薄膜～ 4-8. 国立大学法人北海道大学”, Yano E plus 151, 42 (2020).

[4] ジェグテックヘッドライン, “北海道大学などが、情報記憶素子材料の反応を可視化することに成功”, 2019 年 11 月 18 日

[3] EE Times Japan, “北海道大学と釜山大学校：情報記憶素子用材料の電気化学酸化反応を可視化 – 熱電特性の計測と導電性原子間力顕微鏡観察を組み合わせ -“, 2019 年 11 月 12 日

[2] OPTRONICS ONLINE, “北大ら, 電気化学酸化反応を可視化”, 2019 年 11 月 11 日 (in Japanese)

[1] Fabcross for エンジニア, “熱電特性と導電性原子間力顕微鏡観察を組み合わせた新可視化手法を開発――次世代情報記憶素子の開発を加速 北海道大学ら”, 2019 年 11 月 11 日 (in Japanese)