

4. 平成 28 年度研究業績一覧

研究成果の公表の統計

平成 28 年度（構成員数：17 名）

- 【1】 論文：31 報
国際学会：30 件
国内学会：61 件

- 【2】 共同研究、受託研究等受入実績 10 件

- 【3】 科学研究費助成事業、その他補助金採択実績 7 件

- 【4】 奨学寄附金受入実績 2 件

- 【5】 招待講演 16 件

- 【6】 解説、その他（著書、作品等）3 件

研究成果の公表状況(平成 28 年度)

【1】論文

1. C. Sekine, H. Kato, Y. Kawamura and C.-H. Lee, High-Pressure Synthesis of Skutterudite-Type Thermoelectric Materials, Materials Science Forum, **879** (2016) 1737-1742.
2. Y. Chen, Y. Kawamura, J. Hayashi, K. Takeda and C. Sekine, The structural, transport, and magnetic properties of Yb-filled skutterudites $\text{Yb}_y\text{Fe}_x\text{Co}_{4-x}\text{Sb}_{12}$ synthesized under high pressure, J. Appl. Phys., **120** (2016) 235105 (9 pages).
3. I. Matsushita, A. Kamegawa and S. Sugimoto, High-Pressure Synthesis of New Magnetic Compound in Mn-Li-N System, Materials Transactions **57** (2016) 1832-1836.
4. A. Kamegawa, R. Namba and M. Okada, Effects of Additional Elements on Hydrogen Storage Properties for Vanadium Alloys, Materials Science Forum **879** (2016) 885-890.
5. T. Mezaki, Y. Kuronuma, I. Oikawa, A. Kamegawa, H. Takamura, Li-ion conductivity and phase stability of Ca-doped LiBH_4 under high pressure, Inorganic Chemistry **55** (2016) 10484–10489.
6. A. Ishii, Y. Nakamura, I. Oikawa, A. Kamegawa, H. Takamura, Low-temperature Preparation of high-n TiO_2 thin film on glass by pulsed laser deposition, Applied Surface Science, **347**(2015)523-534.
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9. L.Li, S.Hirai and Y.Tasaki, Synthesis and sintering of SmS_x enriched with Sm and its electrical properties, J. Rare Earths. **35**(2016)1042-1047.
10. K.Matsumoto, L.Li, S.Hirai, E.Nakamura, D.Murayama, Y.Ura and S.Abe, Large magnetocaloric effect in sintered ferromagnetic EuS, Cryogenics, Giant **.79**(2016)45-48.
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12. T.Kuzuya, T.Kuwada, Y.Hamanaka and S.Hirai, Synthesis of Ag-CuInS₂ core shell nanoparticles Materials Transactions, **58**(2017)65-70.
13. T. Kurosawa, K. Takeyama, S. Baar, Y. Shibata, M. Kataoka, S. Mizuta, H. Yoshida, N. Momono, M. Oda, M. Ido, Out-of-Plane Disorder Effects on the Energy Gaps and Electronic Charge Order in $\text{Bi}_2\text{Sr}_{1.7}\text{R}_{0.3}\text{CuO}_{6+\delta}$ (R = La and Eu), J. Phys. Soc. Jpn. **85** (2016) 044709 (7 pages).

14. T. Shimemura, N. Sawaguchi, M. Sasaki, Synthesis and emission properties of scheelite-type $\text{LiCe}(\text{WO}_4)_2$, *J. Ceram. Soc. Jpn.*, **124** (2016) 938-942.
15. T. Shimemura, N. Sawaguchi, M. Sasaki, Structure and light emission of scheelite-type $\text{ACe}(\text{WO}_4)_2$ ($\text{A} = \text{Li, Na, K}$), *J. Ceram. Soc. Jpn.*, **125** (2017).
16. J. Yamaura, K. Takeda, Y. Ikeda, N. Hirao, Y. Ohishi, T. Kobayashi, and Z. Hiroi, Successive spatial symmetry breaking under high pressure in the spin-orbit-coupled metal $\text{Cd}_2\text{Re}_2\text{O}_7$, *Phys. Rev. B* **95** (2017) 020102(R) (5 pages).
17. I. Ivan, A.M. Ionescu, D. Miu, P. Mele and L. Miu, Vortex activation energy in the AC magnetic response of superconducting $\text{YBa}_2\text{Cu}_3\text{O}_7$ thin films with complex pinning structures, *Supercond. Sci. Technol.* **29** (2016) 095013.
18. A.M. Darwish, S. Moore, A. Mohammad, D. Alexander, T. Bastian, W. Dorlus, S.S. Sarkisov, D.N. Patel, P. Mele, B. Koplitz, Organic-inorganic nano-composite films for photonic applications made by multi-beam multi-target pulsed laser deposition with remote control of the plume directions, *Proc. SPIE 9958, Photonic Fiber and Crystal Devices: Advances in Materials and Innovations in Device Applications X* (2016) 995802.
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20. P. Mele, S. Saini, A. Tiwari, P.E. Hopkins, K. Miyazaki, A. Ichinose, J. Niemelä, and M. Karppinen, Thermoelectric and Structural Characterization of Al-Doped $\text{ZnO}/\text{Y}_2\text{O}_3$ Multilayers, *J. Nanosci. Nanotech* **17** (2017) 1616.
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25. S. Kin, H. Oguro, Y. Oshima, T. Matsuda and H. Maeda, Development of a $\text{REBa}_2\text{Cu}_3\text{O}_{7-\delta}$ multi-core superconductor with 'inner split' technology, *Superconductor Science and Technology* **29** (2016) 045006.
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29. 吉田嘉晃, 馬渡康輝, 田畑昌祥, 混合気体から炭酸ガスの高選択的分離を目指した一置換ポリアセチレン膜の開発, *化学工業* **68** (2017) 58-66.
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1. K. Nishine, Y. Kawamura, N. Maruyama, K. Kuwahara, C. Sekine: Magnetoresistance in Filled Skutterudite $\text{EuFe}_4\text{As}_{12}$, *Rare Earths 2016*, 2016年6月9日, Sapporo (Poster).

2. K. Ikemori, K. Suzuki, Y. Kawamura, C. Sekine: High-pressure Synthesis and Magnetic Properties of Rare Earth Zinc Phosphide DyZn_3P_3 , Rare Earths 2016, 2016年6月9日, Sapporo (Poster)..
3. R. Nakajima, J. Sirimart, K. Nishine, Y. Chen, J. Hayashi, C. Sekine: High-pressure Synthesis and Thermoelectric Properties of $\text{Eu}_x\text{Co}_4\text{Sb}_{12}$, Rare Earths 2016, 2016年6月9日, Sapporo (Poster).
4. R. Nakajima, J. Sirimart, K. Nishine, Y. Mona, Y. Kawamura, J. Hayashi, C. Chaichana, C. Sekine: Thermoelectric properties of skutterudite compound $\text{Eu}_x\text{Co}_4\text{Sb}_{12}$ prepared under high pressure, The 17th International Conference on High Pressure in Semiconductor Physics (HPSP-17) & Workshop on High-pressure Study on Superconducting (WHS), 2016年8月9日, Tokyo (Oral)
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6. C. Sekine: High-pressure synthesis of skutterudite-type thermoelectric material, THERMEC'2016, International Conference on Processing & Manufacturing of advanced Materials, 2016年6月1日, Messe Congress Graz, GRAZ, AUSTRIA (Oral)
7. J. Sirimart, R. Nakajima, K. Nishine, Y. Mona, J. Hayashi, Y. Kawamura, C. Sekine: High-pressure synthesis and thermoelectric properties of $\text{Eu}_x\text{Co}_4\text{Sb}_{12}$, Emallia Conference 2016 winter, Theoretical and Experimental Aspects of Advanced Material Sciences, 2016年12月19日, Hokkaido University, Sapporo (Oral).
8. K. Ikemori, K. Suzuki, Y. Kawamura, J. Hayashi, C. Sekine: High-pressure synthesis and magnetic properties of layered rare-earth phosphide GdZn_3P_3 and DyZn_3P_3 , Emallia Conference 2016 winter, Theoretical and Experimental Aspects of Advanced Material Sciences, 2016年12月20日, Hokkaido University, Sapporo (Oral).
9. K. Nishine, J. Sirimart, R. Namajima, Y. Kawamura, J. Hayashi, C. Sekine: High-pressure synthesis of new filled skutterudite compounds $\text{SrT}_4\text{As}_{12}$ (T=Fe, Ru, Os), Emallia Conference 2016 winter, Theoretical and Experimental Aspects of Advanced Material Sciences, 2016年12月20日, Hokkaido University, Sapporo (Oral).
10. A. Kamegawa, R. Namba, M. Okada, Hydrogen Storage Properties of V-Mo alloys, 15th International Symposium on Metal-Hydrogen Systems(MH2016), スイス、2016年8月7日
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14. Y. Kobayashi, K. Kawamura, S. Baar, N. Kaimai, N. Momono, K. Matsumoto, T. Kurosawa, M. Oda, and M. Ido, Effects of La- and Eu-substitutions in High Tc Superconductor $\text{Bi}_2\text{Sr}_2\text{CuO}_{6+d}$ ", Muroran-IT Rare Earth Workshop 2016, Rusutsu, Hokkaido, Japan, 11-12 June 2016.

15. K. Kawamura, Y. Kobayashi, C. Kobashi, S. Baar, K. Matsumoto, N. Momono, T. Kurosawa, M. Oda, and M. Ido, Dy-doping Effects on Cuprate High-Tc Superconductor $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+d}$, Muroran-IT Rare Earth Workshop 2016, Rusutsu, Hokkaido, Japan, 11-12 June 2016.

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18. H.Nakane, T. Kawakubo, Work Function Measurement of Hf-oxide/W(100) Surface by using of Photoemission Electron Microscope. Technical Digest of 29th International Vacuum Nanoelectronics Conference, Vancouver, pp169-170 (2016).

19. P. Mele, S.J. Singh, A. Kamegawa, Y. Mawatari, M. Miryala, S. Saini, X. Obradors, A.K. Jha, K. Matsumoto, A. Ichinose, M.I. Adam, Nanoengineering approach to extend the applicability limits of $\text{REBa}_2\text{Cu}_3\text{O}_x$ (RE = Y and lanthanides) superconducting thin films, Rare earths international conference 2016, Sapporo, Japan, 6-10 June 2016 (oral).

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21. P. Mele, S. Saini, A. Tiwari, K. Matsumoto, K. Miyazaki, Fabrication and evaluation of thermoelectric modules based on bulk and thin film oxides, ICCE-24, 18 July 2016, Haikou, China (in CD) (oral).

22. A. M. Darwish, A.A. Muhammad, D. Alexander, H. Dai, S. Sarkisov, D. Patel, P. Mele, B. Koplitz, D. Hui, S.S. Yap, Triple-Beam Triple-Target Pulsed Laser Deposition Of Polymer Nanocomposite Films With Rare-Earth And AZO Additives, ICCE-24, 18 July 2016, Haikou, China (in CD) (oral).
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25. K. Takeda, K. Ohno, J. Hayashi, Y. Kawamura, Structural anomaly of $\text{KLa}[\text{Pt}(\text{CN})_4]_2 \cdot 8.75\text{H}_2\text{O}$ under high pressure, the International Conference on Rare Earths in Sapporo, Japan (Rare Earths 2016 in Sapporo), June 5 to 10, 2016, Hokkaido Univ.
26. Y. Yamamoto, N. Sawaguchi, M. Sasaki, "Determination Method of Interatomic Potential for Alkali Silicate Glass Simulations", 26th Annual Meeting of MRS-J (2016), D4-O20-009, (2016.12.19-22, Yokohama Port Opening Plaza, Japan).
27. S. Kin, 29th International Superconductivity Symposium (ISS2016)@東京 12.13－15 「Deployment of a high-temperature superconductivity application research project of Leading Initiative for Excellent Young Researchers (LEADER) in Muroran Institute of Technology」
28. Y. Mawatari, S. Hirai. Toward an Effective Use of Light Rare Earths: Hybrid Soft Materials with High Heat Resistance Prepared using Light Rare Earth Elements and Designed Organic Ligands, 6th EU-US-Japan Trilateral Conference on Critical Materials, 29th Nov. 2016, Brussels, Belgium.
29. Y. Kawamura, H. Mikage, J. Hayashi, K. Takeda, H. Gotou, Y. Uwatoko, and C. Sekine, Pressure dependence of superconductivity on filled-skutterudite YT_4P_{12} (T=Ru, Os), 6th International Symposium on Energy Challenges & Mechanics - towards a big picture (ECM6), Inverness, UK, 2016 August.
30. Y. Kawamura, J. Hayashi, K. Takeda, C. Sekine, T. Tanida, M. Sera, S. Nakano, T. Tomita, H. Takahashi, T. Nishioka, X-ray diffraction study of $\text{CeT}_2\text{Al}_{10}$ (T= Ru, Os) at low temperature and under pressure, CSMAG'16, Košice, Slovakia, 2016 Jun.

国内学会

1. 関根ちひろ, Chen Yuqi, Mona Yuttana, 川村幸裕, 林純一: 充填スクッテルダイト化合物

$\text{Yb}_x\text{Fe}_y\text{Co}_{4-y}\text{Sb}_{12}$ の高圧合成と熱電特性, 日本物理学会 2016 年秋季大会, 2016 年 9 月 15 日, 金沢大学 角間キャンパス, 15aPS-2.

2. 関根ちひろ, 出南真吾, MONA Yuttana, 林純一, 川村幸裕, 武田圭生: アルカリ土類金属元素を含む充填スクッテルダイト化合物の高圧合成, 第 57 回高圧討論会, 2016 年 10 月 27 日, 筑波大学

3. 川村幸裕, 出南真吾, 林純一, HEINRICH Patrick, SALAMAKHA Leonid, SIDORENKO Andrey, MICHOR Herwig, BAUER Ernst, 関根ちひろ: アルカリ土類系充填スクッテルダイトの圧力下輸送特性, 第 57 回高圧討論会, 2016 年 10 月 28 日, 筑波大学

4. 中島良介, シリマート ジラッタガン, 西根康平, 陳玉奇, 林純一, 関根ちひろ: スクッテルダイト系熱電材料 $\text{Eu}_x\text{Co}_4\text{Sb}_{12}$ の高圧合成, 平成 28 年度電気・情報関係学会北海道支部連合大会, 2016 年 11 月 5 日, 北海学園大学 山鼻キャンパス

5. 中村祐揮, Patrick Heinrich, Ernst Bauer, 林純一, 川村幸裕, 関根ちひろ: スクッテルダイト超伝導体 $\text{LaPt}_4\text{Ge}_{12}$ の Sb 置換による熱電特性向上の可能性, 平成 28 年度電気・情報関係学会北海道支部連合大会, 2016 年 11 月 5 日, 北海学園大学 山鼻キャンパス

6. 森英将, 池守慶亮, 林純一, 関根ちひろ: 層状希土類化合物 TbZn_3P_3 の高圧合成, 平成 28 年度電気・情報関係学会北海道支部連合大会, 2016 年 11 月 5 日, 北海学園大学 山鼻キャンパス

7 Y. Mona, K. Neshine, K. Sumioka, Y. Kawamura, C. Sekine, High-pressure and high-temperature synthesis of skutterudite-type thermoelectric materials $\text{Ce}_x\text{Co}_4\text{Sb}_{12}$, 平成 28 年度電気・情報関係学会北海道支部連合大会, 2016 年 11 月 5 日, 北海学園大学 山鼻キャンパス

8. 関根ちひろ, 西根康平, 出南真吾, 長内俊英, シリマートジラッタガン, モナユッタナ, 川村幸裕: 充填スクッテルダイト化合物の新物質探索, 日本物理学会 第 72 回年次大会, 2017 年 3 月 17 日, 大阪大学 豊中キャンパス.

9 川村幸裕, 出南真吾, 林純一, Patrick HeinrichA, Leonid SalamakhaA, Andrey SidorenkoA, Herwig MichorA, Ernst BauerA, 関根ちひろ: 充填スクッテルダイト化合物 $\text{CaOs}_4\text{P}_{12}$ の磁気輸送特性, 日本物理学会 第 72 回年次大会, 2017 年 3 月 20 日, 大阪大学 豊中キャンパス

10. 亀川厚則, “内部水素源と LiH を用いた金属水素化物の高圧合成”, Workshop on Materials Science under Ultra-High Pressure, 愛媛大学 (松山) ,2017 年 3 月 3 日

11.木村通, 亀川厚則, “V 系水素吸蔵合金の第二元素による熱力学パラメータ変化に関する研究”, Asian Workshop on Advanced Materials Science 2017, 首都大学東京 (八王子) ,2017 年 3 月 16 日

12. 酒井彰, 小林裕輝: PZT セラミックスの AFM 観測と顕微ラマンマッピング, 日本物理学会