



Associate Professor

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Background

2007-present Associate professor, Department of Physics and Materials Science, Shimane University

2004-2007 Research Associate, Department of Physics and Materials Science, Shimane University

2000-2004 Technical Assistant, Department of Physics and Materials Science, Shimane University

2000 Doctor of Engineering, Graduate School of Marine Science and Engineering, Nagasaki University

1997 Master of Engineering, Graduate School of Materials Science and Engineering, Nagasaki University

1995 Bachelor of Engineering, Department of Materials Science and Engineering, Nagasaki University

Research

My research is focused on powder metallurgical process for preparation of functional materials. The sintering method mainly used in my research is pulse-current sintering (commercially called spark plasma sintering (SPS)), which allows ceramics and metal powders to be sintered at low temperature using short times. Recently, my work has targeted the texture control of functional materials, including Bi₂Te₃-based thermoelectric materials [1, 2], glass-nichrome composites for resistor [3] and oxide semiconductors [4]. I'm also interested in the preparation of nano-structured and nano-grained materials and their physical properties, in both structural and functional materials.

Key papers

1. Ayako Suzuki, Hiroyuki Kitagawa, Shota Ido, Anh Hoang Pham, Shigekazu Morito, Takao Etoh, Kotaro Kikuchi, "Microstructure Control of Bi_{0.4}Sb_{1.6}Te₃ Thermoelectric Material by Pulse-Current Sintering under Cyclic Uniaxial Pressure", *Journal of Alloys and Compounds*, 742 (2018) pp.240-247.
2. Hiroyuki Kitagawa, Kodai Takimura, Shota Ido, Shigekazu Morito, Kotaro Kikuchi, "Thermoelectric Properties of Crystal-Aligned Bismuth Antimony Tellurides Prepared by Pulse-Current Sintering under Cyclic Uniaxial Pressure", *Journal of Alloys and Compounds*, 692 (2017) pp.388-394.
3. Yoshiharu Waku, Teruyuki Yamashita, Hiroyuki Kitagawa, Masahiro Yoshinobu, Hiromichi Katsuyama, Daiki Hamano, Shinji Harui, "Novel electrical and mechanical characteristics of composites composed of electrically conducting Ni-Cr alloy particles in non-conducting soda-lime glass", *Scientific Reports*, 7 (2017) 14662.
4. Hiroyuki Kitagawa, Toshimitsu Kunisada, Yasuji Yamada, Shugo Kubo, "Effect of Boron-doping on Thermoelectric Properties of Rutile-type Titanium Dioxide Sintered Materials", *Journal of Alloys and Compounds*, 508 (2010) pp.582-586.