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# Yuma Umimoto (海本祐真)

## Education

2. M. Sc. Department of Advanced Materials Science,
   The University of Tokyo, March, 2019.

1. B. En. Department of Applied Physics,
   The University of Tokyo, March, 2017.

## What I am interested in

magnetism, magnetoelectric effect, photocurrent, metal-organic framework

## Research Experiences

Single crystal growth by

- floating zone method
- solvothermal method

Evaluation of crystals by

- powder x-ray diffraction
- scanning electron microscope with energy dispersive x-ray spectroscopy
- single crystal x-ray structure analysis (in-house instrument and photon factory)

Physical property measurement such as

- magnetization
- tiny electric current
- transmittance spectrum
- photocurrent with the lock-in technique
- polarized neutron scattering intensity (J-PARC)

(*continued*)

## Peer-reviewed papers

2. T. Sato*, Y. Umimoto*, Y. Sugita, Y. Kato, and Y. Motome (*equal contribution), *Optical Hall response in spin-orbit coupled metals: Comparative study of magnetic cluster monopole, quadrupole, and toroidal orders*, Physical Review B **103**, 054416 (2021).

1. Y. Umimoto, N. Abe, S. Kimura, Y. Tokunaga, and T.-h. Arima, *Out-of-plane electric polarization in double-fan magnetic phase of Y-type hexaferrite*, Physical Review B **101**, 100403(R) (2020).

## Presentations (international)

3. Y. Umimoto, N. Abe, S. Kimura, Y. Tokunaga, and T.-h. Arima, *A new way to control magnetism in Y-type hexaferrite*, Gordon Research Conference (2018), Lewiston, USA.

2. Y. Umimoto, N. Abe, S. Kimura, Y. Tokunaga, and T.-h. Arima, *A new way to control magnetism in Y-type hexaferrite*, J-Physics (2018), Awaji, Japan.

1. Y. Umimoto, Y. Tokunaga, N. Abe, V. Kocsis, Y. Taguchi, Y. Tokura and T.-h. Arima, *Control of the toroidal moment in a room-temperature multiferroic Y-type hexaferrite* $Ba_{2-x}Sr_xCo_2Fe_{12-y}Al_yO_{22}$, The 9th APCTP Workshop on Multiferroics (2017), Kashiwa, Japan.

(*continued*)

**Presentations (domestic)**

4. 海本祐真, 阿部伸行, 徳永祐介, 有馬孝尚,
「点群-42*m* 絶縁体 $Na_{0.2}Mn_{4.4}(VO_4)_3$ の磁気異方性の Co イオン置換による変調」,
日本物理学会第 75 回年次大会 (2020), 名古屋, 日本.

3. 海本祐真, 阿部伸行, 徳永祐介, 有馬孝尚,
「ナトリウム添加バナジウム酸マンガン $N_{a0.2}Mn_{4.4}(VO_4)_3$ 軟磁石の単結晶育成および電気磁気結合の探索」,
日本物理学会 2019 年秋季大会 (2019), 岐阜, 日本.

2. 海本祐真, 阿部伸行, 木村尚次郎, 徳永祐介, 有馬孝尚,
「Y 型六方晶フェライトの二重扇型磁気構造が示す電気分極の *c* 軸成分」,
日本物理学会 2018 年秋季大会 (2018), 京田辺, 日本.

1. 海本祐真, 徳永祐介, 阿部伸行, Vilmos Kocsis, 田口康二郎, 十倉好紀, 有馬孝尚,
「Y 型ヘキサフェライト $Ba_{0.5}Sr_{1.5}Co_2Fe_{11.1}Al_{0.9}O_{22}$ における磁場誘起電気分極の偶奇性の変化」,
日本物理学会第 73 回年次大会 (2018), 野田, 日本.

(*end of the list*)