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# Kazuto AKIBA

**Assistant Professor**

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**Summary**

I have been working on the experimental condensed matter physics under extreme conditions using high magnetic field (including pulsed high magnetic fields), high pressure (using various types of pressure cells), and low temperature (using dilution refrigerators). My target materials include semimetals, narrow-gap semiconductors, topological materials, heavy fermion systems, *etc*. Also, I aim at quantitative analyses of experimental data making effective use of first-principles calculations.

**Education**

| | | |
|---|---|---|
| Doctor of Philosophy | Physics, The University of Tokyo<br>Prof. M. Tokunaga group | 2018 |
| Master of Science | Physics, The University of Tokyo<br>Prof. M. Tokunaga group | 2015 |
| Bachelor of Science | Physics, Nagoya University<br>Condensed-matter theory group | 2013 |

**Research Experience**

| | | |
|---|---|---|
| Assistant Professor | Okayama University | 2018-present |

**Recent Research Topics**

Correlation between superconductivity and charge density wave in $LaAgSb_2$

- K. Akiba *et al.*, Phys. Rev. B **106**, L161113 (2022).
- K. Akiba and T. C. Kobayashi, Phys. Rev. B **107**, 245117 (2023).

Fermiology of $LaAgSb_2$ under high pressure by angle-resolved magneto-transport

- K. Akiba *et al.*, Phys. Rev. B **103**, 085134 (2021).
- K. Akiba *et al.*, Phys. Rev. B **105**, 035108 (2022).

Anomalous Hall effect induced by Berry curvature in pressurized $\alpha$-Mn

- K. Akiba *et al.*, Phys. Rev. Research **2**, 043090 (2020).

**Publications**

Researchmap

Google Scholar

Okayama University Researcher Profiles

**Skills**

High magnetic field

| | |
|---|---|
| Non-destructive pulsed magnet | (max. 75 T) |
| Superconducting magnet | (max. 18 T) |

High pressure

| | |
|---|---|
| Piston-cylinder cell | (max. 3 GPa) |
| Indenter-type cell | (max. 5 GPa) |
| Opposed-anvil-type cell | (max. 10 GPa) |
| Diamond anvil cell | (above 10 GPa) |

Low temperature

| | |
|---|---|
| $^3$He/$^4$He dilution refrigerator | (min. 50 mK) |

High precision measurements under extreme conditions

- Electrical resistivity
- Magnetization
- Specific heat
- Field-angular-resolved measurements using mechanical rotator

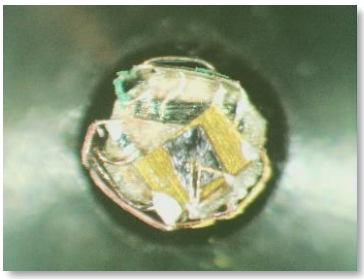
Single crystal growth

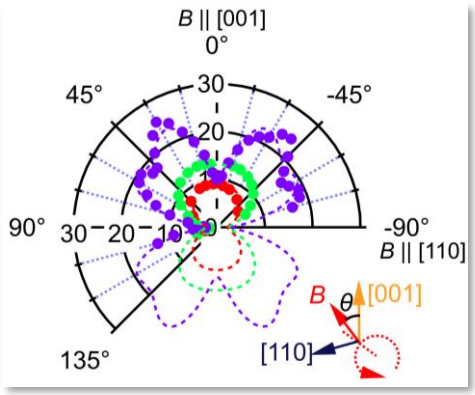
- Flux method

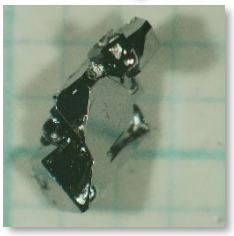
First-principles calculation

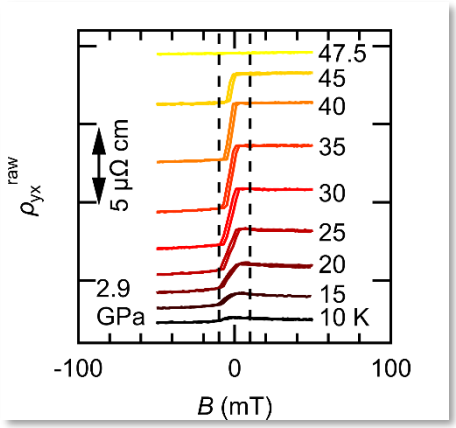
- Quantum ESPRESSO
- WannierTools

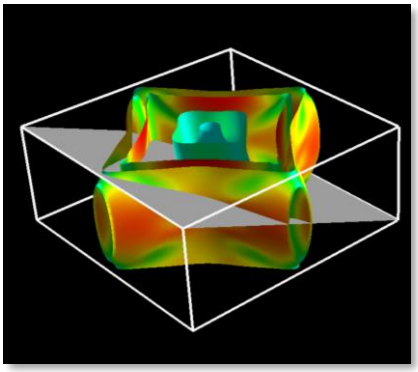
## Gallery

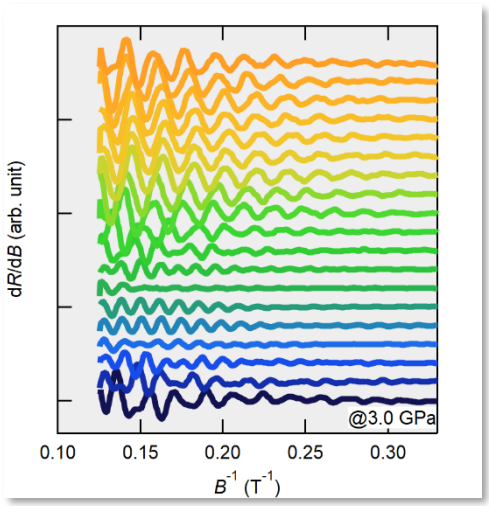



B || [001]
0°
45°
-45°
30
20
10
0
90°
-90°
B || [110]
135°
B
θ
[001]
[110]




47.5
45
40
35
30
25
20
15
10 K
$\rho_{yx}^{raw}$
5 μΩ cm
2.9
GPa
-100
0
100
B (mT)




dR/dB (arb. unit)
@3.0 GPa
0.10
0.15
0.20
0.25
0.30
$B^{-1}$ ($T^{-1}$)