Advanced Electo Measurement Technology
先端医用電子工学研究室

岡山大学
OKAYAMA UNIVERSITY

AEM
Advanced Electro Measurement Technology

***A**dvanced **E**lectro-**M**easurementTechnology Laboratory,*
Graduate School of Interdisciplinary Science and Engineering in Health Systems,
Okayama University, JAPAN

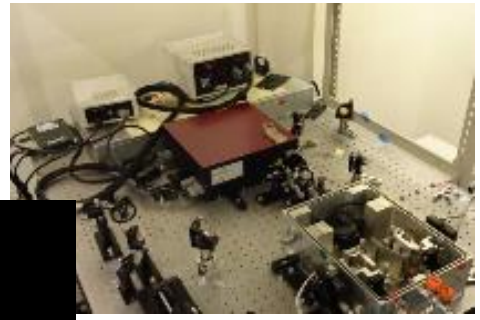
Toshihiko KIWA / 紀和 利彦
Professor / 教授
PhDr. in engineering / 博士(工学)

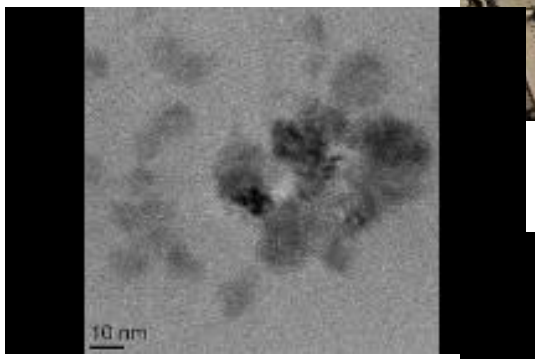
Expertise / 専門

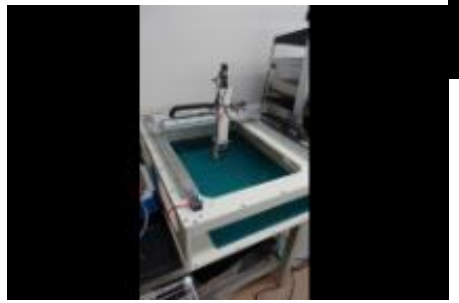
Terahertz technology / テラヘルツ波工学
Superconductor devices & systems / 超伝導デバイス・システム
Sensor devices & systems / センサデバイス・システム

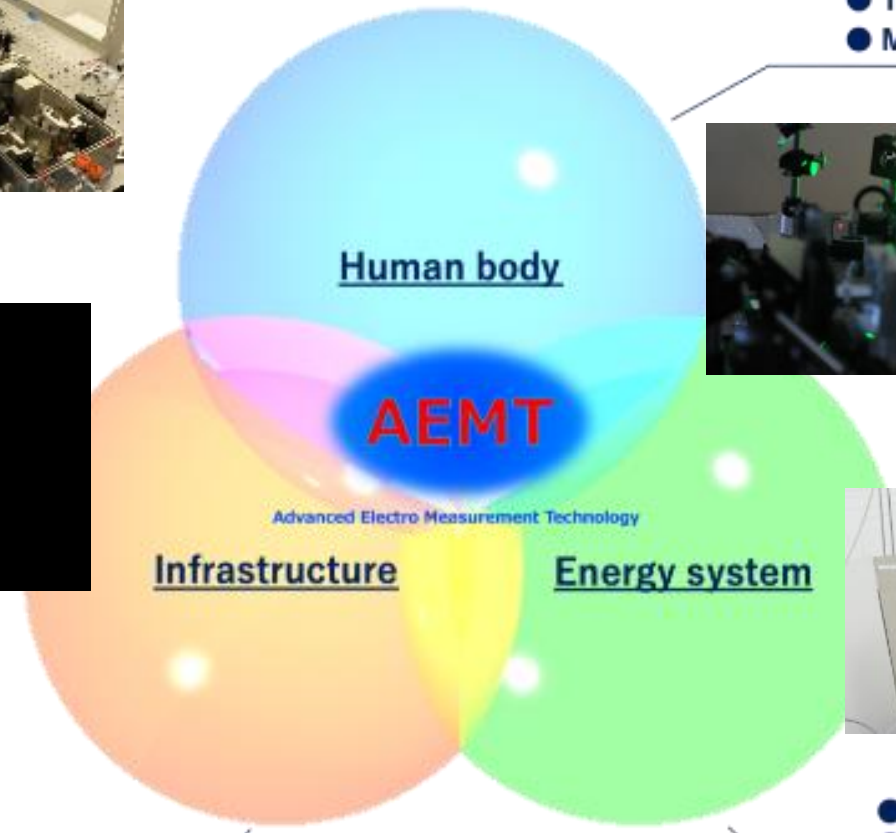
We contribute the "Health" of our society by developing advanced devices & systems.

AEMT lab. contributes establishing sustainable society by proposing and developing novel devices and systems. Combining Terahertz system, high-temperature superconductive SQUID devices, advanced sensor devices, and magnetic measurement systems to diagnose **“health” of human bodies, energy systems, and infrastructures.**

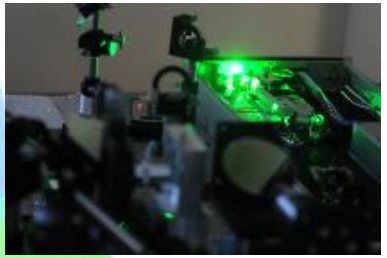








- Magnetic immune assay using HTS-SQUID
- Terahertz system for tumors, ions detection
- Terahertz immune assay
- Magnetic nanoparticle imaging with HTS-SQUID

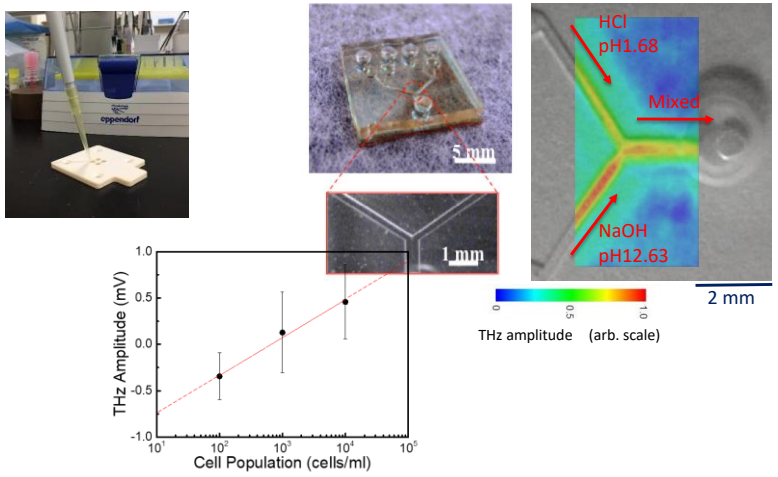


- Advanced magnetic none-destructive test of infrastructure
- Magnetic evaluation of components of industrial products

- Operand diagnosis of Li-ion batteries using Terahertz
- Magnetic none-destructive test of solar cells
- Novel hydrogen gas sensors

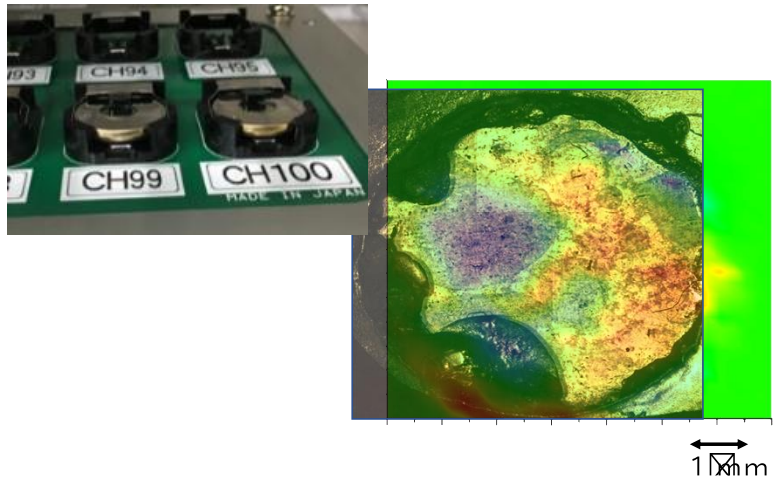
Terahertz technologies

High-speed cancer diagnosis
using a terahertz chemical microscope



Electrochemical technologies

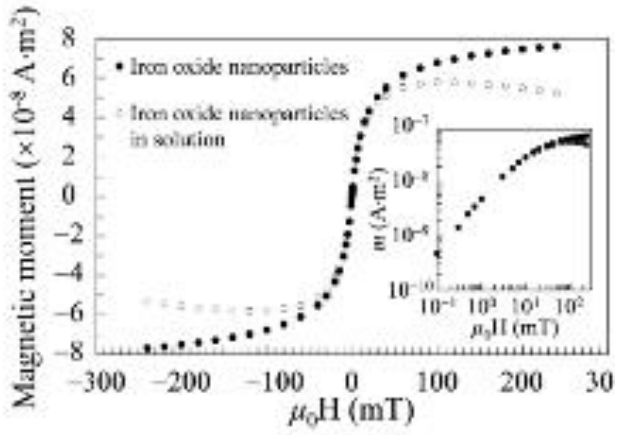
In-situ evaluation of lithium-ion batteries



Hydrogen sensors and ion sensors

Superconducting devices

Magnetic immunoassay using HTS-SQUIDs



We open the door to enthusiastic students .....

We believe that

“Nature itself does not discrimate research fields,”

So our lab. welcomes a lot of students from a range of interests in science and technology; physics, chemistry, and biology.

To play an active role in various industrial fields: electronics, automobiles, medical equipment, chemicals, students are trained in:

- **Design and fabrication of laser optical systems**
- **Design and fabrication of superconducting device systems**
- **Design and fabrication of terahertz systems**
- **Semiconductor device fabrication**
- **Design and fabrication of electric circuits**
- **System design using LabVIEW® software**
- **Design and development of medical instruments**
- **Preparation of bio-materials**
- **Development of electrochemical sensors**