Professor Hitoshi Ohta
Molecular Photoscience Research Center, Kobe University, Japan

Title: **Multi-Extreme THz ESR: Its developments and Applications**

Outline:
Development of THz electron spin resonance (ESR) under multi-extreme conditions is in progress at Kobe. Here multi-extreme conditions include the high magnetic field, the high pressure, the low temperature. It can cover the frequency region between 0.03 and 7 THz, the magnetic field region up to 55 T, the pressure region up to 1.5 GPa, and the temperature region between 1.8 and 300 K. Recently we achieved 2.5 GPa using the hybrid-type pressure cell. Moreover, we are also developing the micro-cantilever ESR, which is the mechanical detection technique and enables the measurements of micrometer size single crystals. Recently, we succeeded in making the micro-cantilever ESR measurements beyond 1 THz. As an application of such system, high pressure THz ESR on the Shastry-Sutherland Model Substance $SrCu_2(BO_3)_2$ up to 2 GPa at 2 K will be presented.