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The 78th Seminar on RIKEN Center for Advanced Photonics

- Hybrid Format -

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On-site: **1F Seminar Room, RIKEN Sendai Campus**
(理研　仙台地区　1 階セミナー室)

Online : **Zoom**

Title: **Recent progress on ultrasonic phased array imaging method for accurate measurement of cracks**

高精度き裂計測のための超音波フェーズドアレイ映像法の新展開

Speaker: **Prof. Yoshikazu OHARA**

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Pre-registration

Nondestructive evaluation (NDE) is indispensable to ensure the safety and reliability of aging structures, mechanical components, and manufactured materials. Among various NDE methods, ultrasonic testing (UT) has been widely used to detect and size internal defects in industrial fields since ultrasound can propagate in solids and is highly sensitive to crack-type defects, which can markedly weaken material strength. Note that most conventional UT is based on observing defect echo (i.e., waveform measurement). Recently, ultrasonic phased array has gained attention as a powerful NDE method because of its excellent imaging capability. This lecture will start with the fundamentals of UT and ultrasonic phased array, followed by introducing a state-of-the-art technique, nonlinear ultrasonic phased array, for imaging the closed cracks that conventional UT cannot measure. Recent progress on ultrasonic phased array toward high-resolution 3D imaging is also introduced.

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