

Speaker: Hiroyuki Ochiai (Kyushu University)

Title: Introduction to the BRIDGE Project: Quantum Mathematical Education — Developing Quantum Talent through a Mathematical Approach

Abstract: I will give an overview of our three-year project (FY2025–FY2027), “Quantum Mathematical Education,” conducted at Kyushu University as part of the contract research project “Development and Pilot Implementation of a Quantum Human Resource Education Ecosystem” under BRIDGE (Programs for Bridging the Gap between R&D and the IDEal Society (Society 5.0) and Generating Economic and Social Value). One distinctive feature of our project is its focus on mathematicians and mathematics students who have little prior exposure to quantum theory. Our lectures introduce quantum algorithms, including Shor’s and Grover’s algorithms, primarily from a mathematical perspective, without requiring an extensive introduction to quantum theory. Many of the key ingredients come from standard areas of mathematics, such as elementary number theory and group theory. In this talk, I will introduce the aims and structure of the project, our approach to quantum education, and some of the educational materials and activities we have developed.