

**Date:** 05/10/2023 Wednesday 12-1 pm

**Location:** Virtual (Webex)



**Title: Noise-Aware and Noise-Free Quantum Software Testing**

**Speaker:** Dr. Shaukat Ali  
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**Abstract:**

Quantum software engineering (QSE) aims to build novel methods, processes, and supporting software tools to develop dependable quantum software-based applications efficiently. QSE encompasses many phases, such as requirements engineering, modeling and specification, development, and verification and validation. This talk, in particular, will focus on quantum software testing that ensures the correctness of quantum circuits with automated testing methods. In particular, I will give an overview of selected quantum software testing techniques developed in our group, including a set of coverage criteria and search-based testing for quantum software, followed by a new technique for noise-aware quantum software testing. Finally, the talk will provide a list of ongoing works in our group on automated testing of quantum software.

**Biography:**

Shaukat Ali is a Chief Research Scientist, Research Professor, and Head of the Department at Simula Research Laboratory, Norway. He focuses on devising novel methods for verifying and validating classical and quantum software systems. He is one of the first research scholars in the world to establish the field of quantum software engineering. He is a co-founder of the international workshop on quantum software engineering and the international conference on quantum software. He also represents Simula in various quantum computing research and industrial networks nationally and internationally.