Quantum computing is emerging as a technology that promises to deliver research capabilities that can lead to major scientific breakthroughs. Not unlike classical supercomputers, enabling scientific advances requires the development of a software stack accessible by end-user domain scientists and developers across the quantum computing ecosystem. Software needs for quantum computing range from the development of programming languages, compilers, tools to validate, verify and debug the hardware, algorithms, and quantum source code. In the near-term the quantum ecosystem will rely on efficient numerical simulators as an integral part of the quantum software stack. Performing computational operations on a quantum computer puts special requirements on the control and characterization software.

This special issue will bring together research advances from across the quantum ecosystem, focusing on software tools with a particular emphasis on realized implementations.

**Topics**
- Programming Languages
- Compilers
- Profilers
- Numerical Simulators
- Debuggers
- Control and Characterization Software
- Other Quantum Computing Software

**Important Dates**
- Submissions deadline: 21 APRIL 2021
- First-round review decisions: 30 JUNE 2021
- Deadline for revision submissions: 15 AUGUST 2021
- Notification of final decisions: 30 SEPTEMBER 2021
- Tentative publication: EARLY 2022

**Submission Information**
Manuscript submission guidelines are available online at [https://dl.acm.org/journal/tqc/author-guidelines](https://dl.acm.org/journal/tqc/author-guidelines)
Submissions should select the Special Issue on Software Tools for Quantum Computing. For questions and further information, please contact **Wibe A. de Jong, wadejong@lbl.gov**