

Information Science & Technology Institute <http://isti.lanl.gov>

Call for Rapid Response Familiarization Proposals 2017/2018: Quantum Programming

Due Date: August 21, 2017 (One-week extensions may be granted if we receive a brief Email of Intent by August 21).

Objective: In order to familiarize a broad and diverse workforce with novel computing techniques, the Information Science & Technology Institute (ISTI) solicits proposals for general gate level quantum programming.

Process. Selected performers will:

- (i) Pick an existing quantum algorithm as described for instance on the Quantum Zoo page (<http://math.nist.gov/quantum/zoo/>)
- (ii) Study, understand, and implement it on the IBM Quantum Experience (<https://quantumexperience.ng.bluemix.net/qx/user-guide>)
- (iii) Explain to the LANL quantum computing community mid-November 2017 in a talk what the algorithm does, how it works, and what was learned from implementing it on the IBM Quantum Experience.

We will have two IBM experts present a hands-on IBM Quantum Experience tutorial on August 24, 2017. Attendance is highly recommended for potential performers.

Proposal format: Maximum of 0.5 pages (11 pt. font or larger) with the following sections: 1) Proposed algorithm(s) from Quantum Zoo: give a prioritized list of at least three algorithms you would be willing to study, 2) Brief bio with a focus on your background, interest, and motivation in quantum programming, 3) Logistics: include Z# and your org code. Funded performers will receive 160 hours of funding.

Evaluation process and Timeline: Selections will be made based on algorithm portfolio diversity and proposer background. We aim to have funding decisions out by August 23, but may need an extra week. These are G&A projects. G&A funds may be used only for the purpose of program development, capability demonstration, or workforce education. It is the responsibility of the PI and project team members to understand and strictly abide by these rules.

Please submit proposals to: isti@lanl.gov with subject line "ISTI Rapid Response Quantum Programming". For questions, contact Stephan Eidenbenz (eidenben@lanl.gov).

ISTI is a part of the National Security Education Center (NSEC).

