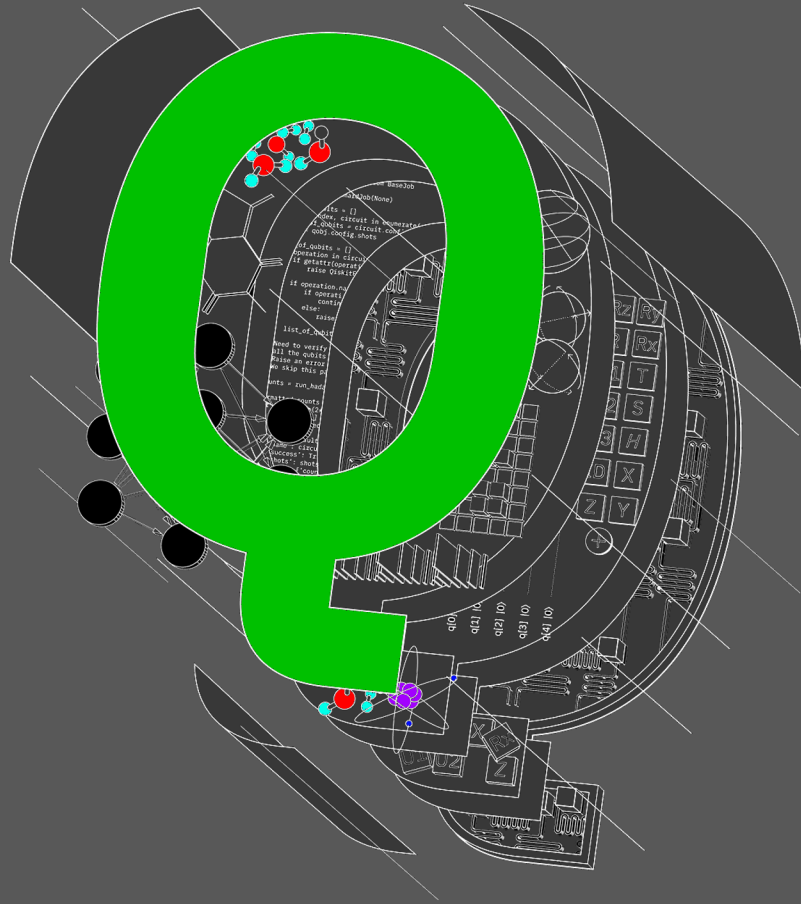# Quantum Computing and IBM Q: An Introduction

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In this talk we will discuss the motivation for quantum computing and the types of problems to which it might be applied. We will describe the basics of the technology and show where we are in the timeline toward reaching quantum advantage: the point where quantum computing shows demonstrable and significant advantage over classical computers and algorithms. We will describe the IBM Q programming environment (Qiskit), the library toolkit (Aqua), the error correction modules (Ignis), the hardware simulator (Aer) and the hardware optimizer for real quantum computer hardware (terra). We will conclude with a description of the IBM Q Network of research institutions and how academic institutions can collaborate with IBM.

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