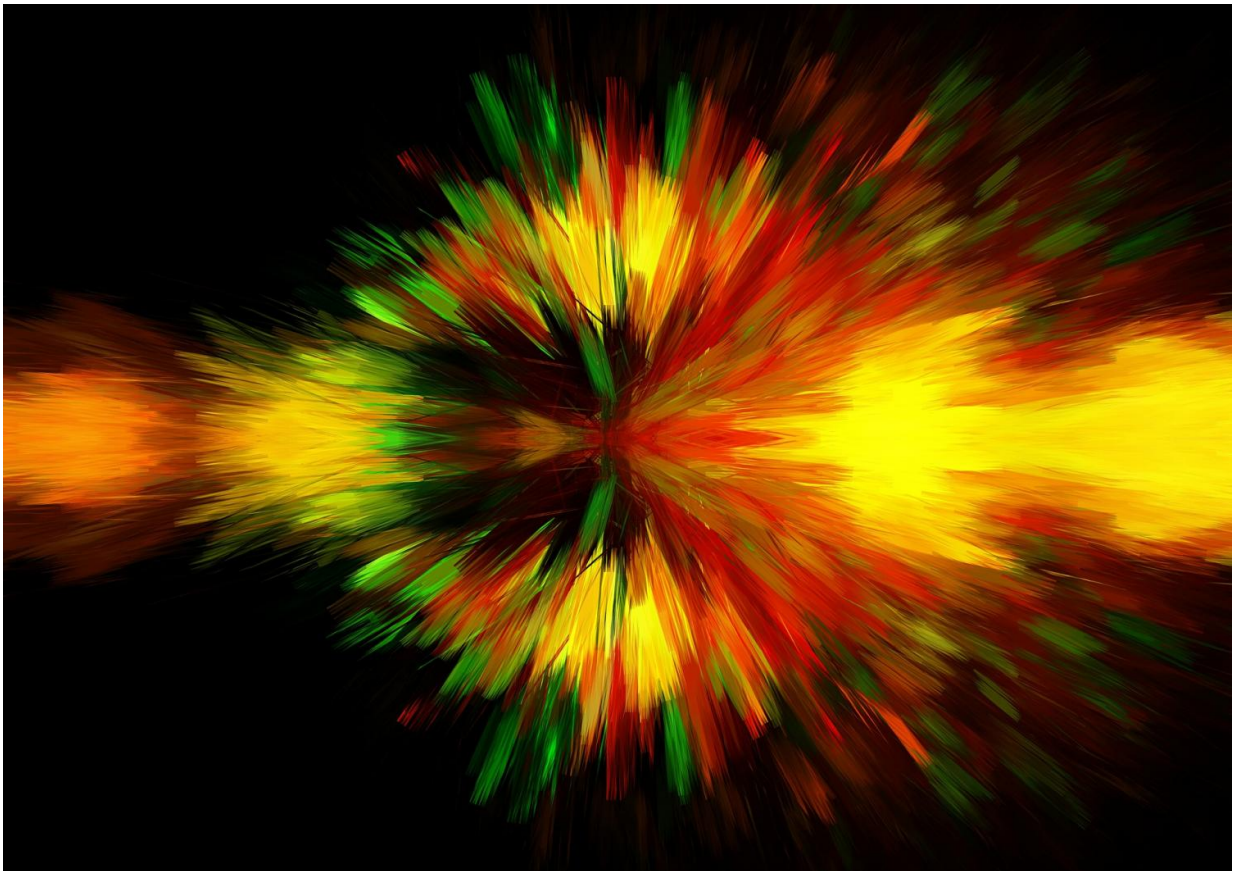# IBM announces world's first commercial 'universal' quantum-computing service

March 6 2017, by Bob Yirka

IBM has announced its plans to begin offering the world's first commercial universal quantum-computing service—called IBM Q, the

system will be made available to those who wish to use it for a fee sometime later this year. The new system will build on IBM's Quantum Experience, a software development platform for programmers and developers interested in designing and building actual quantum-based applications.

Quantum computers are new and different, and still very much under development. They run using quantum bits rather than the digital 0s and 1s we all know so well, and are therefore expected one day to be capable of solving problems or running applications that today are impossible. Imagine, the team at IBM suggests, a computer that could faithfully model nature in its nearly infinite variety of interactions and relationships.

As part of the roll out of IBM Q, IBM will also release a new API for Quantum Experience and an upgraded simulator. Later this year, the company will also release a full SDK. The company expects it to help programmers around the world learn to code in a whole new way that will result in unprecedented software applications able to take advantage of the unique abilities of a universal quantum computer.

Even as IBM begins selling quantum computing services, the company will continue to develop the quantum computing hardware at the core of its system. They have set a goal of building a 50-qubit system over the next few years. However, they have not revealed the quantum volume customers can expect when the system goes online—current Quantum Experience users have access to 5 qubit computing. The company has embraced the approach of incorporating qubits with superconducting circuits by keeping them at temperatures just above absolute zero.

In its announcement, IBM suggests it believes customers (or academics) will want to use Quantum Experience to build their own applications using quantum programming, which will then execute via the cloud on

IBM Q. They note that Quantum Experience was launched just less than a year ago, but already over 40,000 users have built and run 275,000 test applications and 15 research papers have resulted thus far.