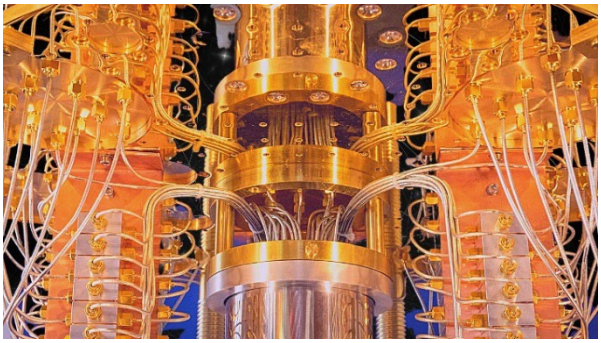
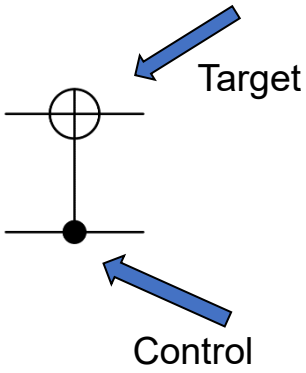
Technische Hochschule Nürnberg
Fakultät Angewandte Mathematik, Physik und Allgemeinwissenschaften

Curious about Quantum Computing?





For a gentle introduction into the field, attend the short lecture series (four lectures), in English:

Time: 16.30

1. Thursday, July 6

2. Tuesday, July 11

3. Thursday, July 13

4. Monday, July 17

Location: KA.215

TH Nürnberg Georg Simon Ohm

Kesslerplatz 12

Duration: each lecture is 45 min.

Introduction to Quantum Computing and its Applications in Different Fields Including Chemistry

Prof. Ulrich Fekl, University of Toronto, Canada

Quantum computing is an extremely exciting field. A quantum computer is unlike any conventional computer; while its bits are allowed to be in the state 0 *or* 1, they are also allowed to be in any superposition of 0 *and* 1, unlike in a conventional computer. This is not a disadvantage – a quantum computer will be able to do anything a conventional computer can do. Will it be an advantage? This question is of intense current interest. For some specific problems, possibly in finance and logistics, almost certainly in chemistry and materials science, there will be a tremendous speed-up from using quantum computers instead of conventional computers. The principles of computation (classical and non-classical) will be introduced. The types of quantum computer (future universal quantum computer versus currently existing noisy intermediate scale quantum machine) will be discussed. A basic introduction into the elements of quantum circuits will be given. Applications of quantum computing in various fields will be discussed, along with some own research results in the field of chemistry.

These lectures are suitable for all audiences (“Hörer aller Fakultäten”). There are no specific prerequisites or program requirements. Recommended (but not required) reading: Thomas Wong, “Introduction to Classical and Quantum Computing”, available for free directly from Thomas Wong as an eBook (.pdf) download at https://www.thomaswong.net/