Math 280: Quantum Probability

Instructor: Greg Kuperberg
Where: Mathematical Sciences Building 3106
When: Tuesdays and Thursdays at 12:10-1:30 pm

This course will be a mathematician's introduction to quantum information, quantum mechanics, and quantum computation. The foundation of these topics is also known as quantum probability or non-commutative probability. The framework is entirely rigorous – we will not do quantum field theory. Nonetheless, it implies many things that are difficult to understand because they are difficult to believe, including: the two-slit experiment, the EPR paradox and Bell's inequalities, true random number generators and quantum communications security, and quantum algorithms that are exponentially faster than classical algorithms.