

Department of Mathematics and Computer Science

Friday, January 24, 2014 and Friday, January 31, 4:00

COLLOQUIUM TALK

Speaker: E.I. Gordon

Old Main 2231

Atoms, Molecules and Mathematics

This and the upcoming talk will be dedicated to the 100th anniversary of Russian mathematicians A.G. Sigalov (1913–1969) and to G.M. Zhislin in celebration of his 80th birthday.

Abstract:

The non-relativistic quantum mechanics is a physical theory that was completed in the 1920's. However, very few of its results had rigorous mathematical proofs. Even the existence of atoms was proved rigorously only for the simplest atom—the hydrogen atom. Mathematically this problem is formulated as the problem of the existence of discrete spectra for Schrödinger operators with multiparticle hamiltonians.

The rigorous proofs of the existence of atoms was given only in 1960's by Russian mathematicians A.G. Sigalov and his student and collaborator G.M. Zhislin. In the two following talks we will discuss these results, some open problems, and demonstrate the importance of group theory in the theory of atomic spectra.

Only the knowledge of some basic notions of linear algebra will be expected from the audience. All other notions will be introduced in the talks.

SNACKS IN FACULTY LOUNGE AT 3:30 PM.
EVERYONE WELCOME (EVEN IF YOU ARE UNABLE TO ATTEND THE TALK)
