Simultaneous block diagonalization and triangularization of high-dimensional tensors
James Wilson
Colorado State University

Efficiently block diagonalizing or triangularizing a matrix is well-known, but doing the same for 3-tensor, 4-tensor etc. is also possible by appealing to some associative and non-associative algebra, and a small amount of category theory. I will assume no prior knowledge outside of linear algebra.

Constructive Membership Tests in Some Infinite Matrix Groups
Alexander Hulpke
Colorado State University

I'll describe algorithms and heuristics that allow us to express arbitrary elements of $SL_n(Z)$ and $Sp_{2n}(Z)$ as products of generators in particular “standard” generating sets. For elements obtained experimentally as random products, they produce product expressions whose lengths are competitive with the input lengths.

Weber 223
4–6 pm
Friday, Sep 7, 2018
(Refreshments in Weber 117, 3:30–4 pm)
Colorado State University