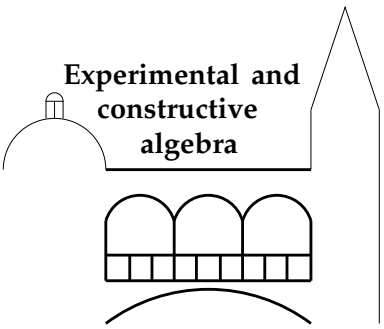
Graduiertenkolleg

Experimentelle und konstruktive Algebra



Kolloquiumsvortrag

Dienstag, 30. Oktober 2018, 14:15 Uhr, Hörsaal IV

Dirk Liebhold (Lehrstuhl D für Mathematik):
Network coding with flags

Network coding is a new concept designed to replace or at least add to Routing in the transmission of data over a network (e.g. the Internet). Here, we send information vectors through a network with multiple internal nodes, which are all forming linear combinations of their received input. Therefore, what is left invariant is the subspace generated by the vectors sent.

In our talk, we consider a network where during the linear combinations, an order on the vectors is preserved, thus giving us not invariant subspaces but rather invariant flags. We discuss abstract models, algorithms and examples of flag codes for such a setting and also define new distance functions on flags.

Given that the stabilizer of a full flag is a Borel subgroup of the general linear group, we can relate the defined distance functions to three functions on the symmetric group S_n, namely the Coxeter length, the depth and the number of components. To stay true to the October motto and include Young diagrams in our talk, we will take a representation theoretic look at these functions by computing $\sum_{\pi \in S_n} f(\pi)\chi(\pi)$ where f is one of the three functions and χ is an irreducible character of S_n.

Wir laden alle Interessierten herzlich ein.