

## Report

### **Workshop on Algebraic K-theory 2004 October 2-6, 2004**

*Organizers:* Eric Friedlander (Northwestern), Dan Grayson (Illinois, Urbana-Champaign), Rick Jardine (Western Ontario), Manfred Kolster (McMaster)

The meeting reflected some of the major developments of the past year in the subject, particularly in motivic homotopy theory. These include Levine's proof of the Voevodsky slice conjecture, Morel's proof of the unstable connectivity theorem for motivic homotopy types (which was described in his talk as a type of Hurewicz theorem), and the identification by Røndigs and Ostvaer of Voevodsky's triangulated category of motives with the stable category of modules over the cycle-theoretic Eilenberg-Mac Lane spectrum. Levine's theorem uses a homotopy theoretic approach to the Chow moving lemma, which was discussed during his talk. The Levine and the Røndigs-Ostvaer results together substantially demystify the relation between the motivic stable category and motivic cohomology, while Morel's work points the way to explicit calculations of motivic homotopy groups. Suslin displayed a spectral sequence for the motivic cohomology of an arbitrary Severi-Brauer variety which is built from a decomposition of the motive associated to its  $\mathbb{A}^1$ -resolution. It had been expected that the proof of the Bloch-Kato conjecture relating Galois cohomology to the Milnor K-theory of a field would be completely written up by the time of this conference, but this was not to be. Suslin predicts, however, that this proof will be properly written up within a year. The Bloch-Kato conjecture has sensational calculational consequences; these include the Lichtenbaum-Quillen conjecture which says that K-theory can be computed from étale cohomology.