

1078-47-402

**Jerome Kaminker\*** ([kaminker@math.ucdavis.edu](mailto:kaminker@math.ucdavis.edu)), Department of Mathematics, UC Davis, Davis, CA 95616. *Higher spectral flow.*

Viewing  $K^1(X)$  as made up of families of unbounded self-adjoint operators with compact resolvent, one is led to study how invariants such as the Chern character depend on the spectrum and eigenspaces. In particular, the change in the multiplicity of eigenvalues as one moves around the parameter space  $X$  provides information on the K-theory class of the family. In a joint project with Ron Douglas we have been developing this point of view. The talk will explain some of the techniques used and apply them to classify families over closed 3-manifolds. Some relations to Berry phase and generalized characteristic classes, such as Spectral Flow and the Index Gerbe, will be discussed. (Received December 13, 2011)