1051-18-150        **Orit Davidovich\*** (`odavidovich@math.utexas.edu`). *Modular Categories and Galois Twists.*

In joint work with Zhenghan Wang (Microsoft) and Tobias Hagge (UT Dallas) we prove that any modular category defined over the complex numbers is a scalar extension of a modular category defined over a number field. One can use this claim to twist a given modular category by means of a Galois automorphism as a way of producing a new modular category from an old one, while keeping the Grothendieck ring fixed. Modular categories from quantum groups at roots of unity of fixed degree are related to one another by such twists. One hopes that the Galois group action will give new insight into the classification of modular categories. (Received August 23, 2009)