1046-53-1445 **Michael Hutchings*** (`hutching@math.berkeley.edu`), Mathematics Dept, 970 Evans Hall, University of California, Berkeley, CA 94720. *From Seiberg-Witten theory to closed orbits of vector fields: Taubes's proof of the Weinstein conjecture.*

Does every smooth vector field on a closed 3-manifold have a closed orbit? No, according to counterexamples by K. Kuperberg and others. On the other hand there is a special class of vector fields, called Reeb vector fields, which are associated to contact forms. The Weinstein conjecture asserts that every Reeb vector field on a closed oriented 3-manifold has a closed orbit. This conjecture was recently proved by Taubes using Seiberg-Witten theory. We will give an introduction to the Weinstein conjecture, the main ideas in Taubes's proof, and the bigger picture into which it fits. (Received September 15, 2008)