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Denis Auroux* (auroux@math.berkeley.edu), University of California Berkeley, Department of Mathematics, 817 Evans Hall #3840, Berkeley, CA 94720-3840. *The symplectic geometry of symmetric products and invariants of 3-manifolds with boundary.*

About 10 years ago, Peter Ozsváth and Zoltán Szabó introduced new topological invariants of 3- and 4-dimensional smooth manifolds, defined in terms of Floer homology for product tori in symmetric products of Riemann surfaces. Over the years, a succession of advances have made these invariants ever more versatile and computable: Heegaard-Floer homology can be used to study knots, links, sutured manifolds, etc.; it has provided answers to many important questions in low-dimensional topology.

More recently, the introduction of *bordered Heegaard-Floer homology* by Robert Lipshitz, Peter Ozsváth and Dylan Thurston in 2008 has led to a much richer picture, in which these invariants fit into an extended topological field theory, associating algebras to surfaces and modules over these algebras to 3-manifolds with boundary. Recent work of Yankı Lekili and Tim Perutz further suggests a natural geometric interpretation of bordered Heegaard-Floer homology.

In this talk, we will try to present this circle of ideas from the perspective of the symplectic geometry of symmetric products of surfaces; our goal will be to show how sophisticated tools such as Fukaya categories can be used to explain the remarkable structure behind Heegaard-Floer theory. (Received September 08, 2010)