1083-57-67 **David T Gay*** (dgay@uga.edu), Department of Mathematics, University of Georgia, Athens, GA 30602, and **Robion Kirby**, Department of Mathematics, University of California, Berkeley, CA 94720-3840. *Existence and uniqueness for trisections of 4-manifolds.*

A trisection of a 4–manifold is a decomposition into 3 pieces, each diffeomorphic to the boundary connected sum of k copies of $S^1 \times B^3$, for some k. The pairwise intersections are handlebodies of some genus g and the triple intersection is a surface of genus g. This is an analog of a Heegaard splitting of a 3–manifold, but to go up in dimension we need more pieces. I will present the existence and uniqueness theorem, discuss it's proof, and conjecture about applications. (Received August 16, 2012)