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Remi Boutonnet (rboutonnet@ucsd.edu), Department of Mathematics, University of California San Diego, 9500 Gilman Drive, La Jolla, CA 92093, **Ionut Chifan*** (ionut-chifan@uiowa.edu), Department of Mathematics, University of Iowa, 14 MacLean Hall, Iowa City, IA 52242, and **Adrian Ioana** (aioana@ucsd.edu), Department of Mathematics, University of California San Diego, 9500 Gilman Drive, La Jolla, CA 92093. *II₁ factors with non-isomorphic ultrapowers.*

In this talk we will show that there exist uncountably many separable II_1 factors whose ultrapowers (with respect to arbitrary ultrafilters) are non-isomorphic. In fact, it will be proved that the families of non-isomorphic II_1 factors originally introduced by Dusa McDuff in the late sixties are such examples. This entails the existence of a continuum of non-elementarily equivalent II_1 factors, thus settling a well-known open problem in the continuous model theory of operator algebras. This is based on joint work with Remi Boutonnet and Adrian Ioana. (Received August 10, 2015)