1106-03-2173 **Ashwini Aroskar*** (aaroskar@umich.edu) and **James Cummings**.
Generalized Limits for Weighted Structures.

Since the introduction of analytic objects called graphons as dense graph limits by L. Lovász and B. Szegedy, the existence of limits for other discrete structures (for example, directed graphs, k-uniform hypergraphs and bounded degree graphs) has also been shown. Using a correspondence between ultraproduct spaces and Euclidean spaces, we have previously proved the existence of limits for general relational structures. This correspondence also yields interesting combinatorial results, namely Regularity and Removal lemmas for relational structures. We have extended the aforementioned correspondence to measurable functions on the ultraproduct and Euclidean spaces. We can prove the existence of limits for weighted structures (with uniformly bounded weights) and these limits can be seen as generalizations of the limits we have obtained for relational structures. Our primary tool is a theory of measures on ultraproduct spaces introduced by G. Elek and B. Szegedy. (Received September 16, 2014)