1106-05-1834   **Christian Borgs**, **Jennifer T Chayes** and **Henry Cohn*** (`cohn@microsoft.com`), Microsoft Research, One Memorial Drive, Cambridge, MA 02142, and **Yufei Zhao**. *An L^p theory of sparse graph convergence II: LD convergence, quotients, and right convergence.*

We extend the L^p theory of sparse graph limits by analyzing different notions of convergence. Under suitable restrictions on node weights, we prove the equivalence of metric convergence, quotient convergence, microcanonical ground state energy convergence, microcanonical free energy convergence, and large deviation convergence. Our theorems extend the broad applicability of dense graph convergence to all sparse graphs with unbounded average degree, while the proofs require new techniques based on uniform upper regularity. Examples to which our theory applies include stochastic block models, power law graphs, and sparse versions of W-random graphs. (Received September 15, 2014)