Leonid Gurvits* (l.n.gurvits@gnail.com), North Academic Center, 8/206, 160 Convent Avenue, New York, NY 10031. The Bethe approximation, correlation inequalities and lower bounds on the permanent: how Friedland’s monomer-dimer conjecture (LAMC) was proved and Lu-Mohr-Szekely was disproved. Preliminary report.

The Bethe Approximation (BA) is a popular, non-rigorous heuristic in stat. physics and machine learning. I will describe a completely kosher application of (BA) to the approximation of the permanent. In particular, a proof of Friedland’s monomer-dimer conjecture will be sketched. Time permitting, some new probabilistic interpretations of lower bounds on the permanent and related new conjectures will be covered. (Received February 21, 2013)