1073-57-137 **Yuanan Diao*** (ydiao@uncc.edu), 11908 Three Vistas Ct, Charlotte, NC 28277, and **Gabor Hetyei**. *Relative Tutte Polynomials for Colored Graphs and Virtual Knot Theory.*

In an earlier work, we introduced the concept of a relative Tutte polynomial of colored graphs. We showed that this relative Tutte polynomial can be computed in a way similar to the classical spanning tree expansion used by Tutte in his original paper on this subject. We showed that the Kauffman bracket polynomial (hence the Jones polynomial) of a virtual knot can be computed from the relative Tutte polynomial of the face graph of any given projection of the virtual knot, with some suitable variable substitutions. In this talk, we show that the special formulation of Tutte polynomial in the case of a tensor product of two colored graphs by Brylawski can be extended to the case of the relative Tutte polynomials. This allows fast computations of the Jones polynomials of virtual knots obtained by repeated tangle operations. (Received July 30, 2011)