1046-57-1385   **Kerry Luse*** (`lusek@trinitydc.edu`), 125 Michigan Ave. NE, Washington, DC 20017, and **Yongwu Rong**. *A transition polynomial for signed Feynman diagrams.* Preliminary report.

We apply Jeager's notion of a transition polynomial to signed Feynman diagrams, also called chord diagrams. This polynomial contains useful topological information, such as genus of the diagram. The genus of these diagrams is important in the question of RNA folding. The structure of an RNA molecule can be discussed on three levels. It is the secondary structure that can be captured using a version of Feynman diagrams. We also classify all genus one Feynman diagrams. (Received September 15, 2008)