1163-05-440   **Iain Moffatt*** (`iain.moffatt@rhul.ac.uk`), Deprtment of Mathematics, Royal Holloway, University of London, Egham, TW20 0EX, United Kingdom. *The Tutte polynomial and graphs in surfaces.*

The Tutte polynomial is a probably the best-studied graph polynomial. It arises in many applications of graph theory and also has many applications within combinatorics. There have been various extensions of the Tutte polynomial from graphs to graphs embedded in surfaces. The literature on such "topological Tutte polynomials" has mostly focussed on cellularly embedded graphs. In this talk, however, I will argue that to fully understand these topological Tutte polynomials we need to move beyond cellular embeddings in surfaces, and that is is most natural to consider non-cellular embeddings in pseudo-surfaces. I'll give a run through of what is and is not know about these graph polynomials, as well as describing a number of open problems and research directions. (Received September 07, 2020)