HOMAYUN KARIMI, McMaster University

The Jones-Krushkal polynomial and minimal diagrams of surface links

We prove a Kauffman-Murasugi-Thistlethwaite theorem for alternating links in thickened surfaces. It states that any reduced alternating diagram of a link in a thickened surface has minimal crossing number, and any two reduced alternating diagrams of the same link have the same writhe. This result is proved more generally for link diagrams that are adequate, and the proof involves a two-variable generalization of the Jones polynomial for surface links defined by Krushkal. The main result is used to establish the first and second Tait conjectures for links in thickened surfaces and for virtual links. This is joint work with Hans U. Boden.