1167-37-276   **Annina Iseli*** (`annina.iseli@math.ucla.edu`), **Mario Bonk** and **Mikhail Hlushchanka**.
Eliminating obstructions for Thurston maps. Preliminary report.

A Thurston map is a branched covering map of the two-sphere which is not a homeomorphism and for which every critical point has a finite orbit under iteration of the map. Frequently, a Thurston map admits a description in purely combinatorial-topological terms. In this context it is an interesting question whether a given map can be realized by a rational map with the same combinatorics. This question was answered by Thurston in the 1980's in his celebrated characterization of postcritically finite rational maps. It roughly says that a Thurston map is realized if and only if it does not admit a Thurston obstruction - a condition that in most cases is highly non-trivial to verify. Furthermore, a theorem by Haissinski-Pilgrim and Bonk-Meyer relates this criterion to visual metrics on the two-sphere that are induced by Thurston maps.

In this talk, we will consider a specific family of Thurston maps that arises from surgery on a polygonal sphere. We will discuss a necessary and sufficient combinatorial condition that guarantees for a map in this family to be realized. This result is a special case of a more general result about the elimination of obstructions for Thurston maps with four postcritical points by a procedure of blowing up arcs. (Joint with M. Bonk and M. Hlushchanka) (Received March 09, 2021)