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Singularity theory on spider spaces

Opis: Spiders are models of graphs consisting of a central body (the 'head'), in a Euclidean space, connected by legs to finitely many fixed points called the feet. Each leg consists of a finite number of connected bars with fixed lengths, that are allowed to move. These type of legs are also known as 'robot arms'. Spiders are examples of arachnoid mechanisms. Planar spiders are those, which can move in the affine plane.

In this talk we will first describe the spider space (i.e the configuration space of spiders) and discuss its singularities. After that we will consider a Hooke Energy function and describe its critical points, then discuss the Morse-Bott one, including their Morse indices. There is a direct relation with the critical points of a squared distance function.

Details will appear in joint work with with Maciej Denkowski and Gaiane Panina.