

## Generalized Nash problem for surfaces

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### **Abstract:**

Nash formulated Nash problem in the sixties in an attempt to understand resolution of singularities of a variety  $X$  in relation with the space of arcs in  $X$  centered at the singular locus. For the surface case a conjecture was stated and is related to the minimal resolution of the surface. In 2011 we gave, with Javier Fernandez de Bobadilla, a proof, of topological nature, of this conjecture. A generalized version of the problem is to describe all inclusions of certain natural subsets of the space of arcs. Already the case of smooth surfaces seems quite open. In this talk, I will sketch the proof of Nash conjecture in dimension 2 and discuss the work in progress of the generalized problem in the complex plane  $\mathbb{C}^2$ .