

## HARMONIC MAPS AND THE VECTORIAL OBSTACLE PROBLEM

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I will discuss some recent results obtained in collaboration with A. Figalli, S. Kim and H. Shahgholian. We consider minimizers of the Dirichlet energy among maps constrained to take values outside a smooth domain  $O$  in  $\mathbb{R}^m$ . These minimizers can be thought of either as solutions of a vectorial obstacle problem, or as harmonic maps into the manifold-with-boundary given by the complement of  $O$ . I will discuss results concerning the regularity of the minimizers, the location of their singularities, and the structure of the free boundary.