

# Asymptotic behavior of $p$ -Harmonic mappings when $p$ goes to 2

*Monday, June 24, 2024 2:00 PM (30 minutes)*

A mapping of nonzero topological degree from the boundary of a disk to the circle cannot be extended by a continuous mapping defined on the whole disk to the circle as homotopy theory asserts. However, this extension is possible if one allows the extended mapping to have discontinuous points, also called singularities. Geometrical and physical situations that we will describe motivate the problem of finding the 'best' extension possible in the sense of minimization of the  $p$ -Dirichlet energy when  $p = 2$ . However, this is only possible when  $p < 2$  for reasons we will explain. We will describe the limiting behavior when  $p$  goes to 2 of the minimizers as well as the convergence of the singularities they carry. We will also take the opportunity to raise the question for the 3D variant as well as other manifolds than the circle.

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