

Magnetic maps

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This talk is based mainly on some work with Jun-ichi Inoguchi.

We introduce the notion of magnetic maps between Riemannian manifolds. They are generalizations of both magnetic curves and harmonic maps. We provide some fundamental examples of magnetic maps. Furthermore, we study some classes of magnetic surfaces in Euclidean 3-space. Then we produce examples of magnetic maps, having as either source or target manifold the tangent bundle of a Riemannian manifold equipped with several Riemannian metrics. In particular we study when the canonical projection, a vector field and the tangent map are, respectively, magnetic maps.

- [1] Inoguchi J, Munteanu MI. Magnetic maps. *International Journal of Geometric Methods in Modern Physics*. 2014; 11(6): 1450058 (22 pages).
 - [2] Inoguchi J, Munteanu MI. New examples of magnetic maps involving tangent bundles. *Rendiconti del Seminario Matematico Università e Politecnico di Torino*, to appear.
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