

Burkholder integrals, restricted quasiconvexity and energy functionals in non-linear elasticity

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Resumen

The Burkholder functional B_p gives a particularly interesting candidate to test Morrey's conjecture in two dimensions, i.e. if every rank-one convex integrand or functional in $\mathbb{R}^{2 \times 2}$ is quasiconvex.

In this talk on our joint work in preparation, we extend [?] and show that B_p is quasiconvex at matrices $A \in \mathbb{R}^{2 \times 2}$ with $B_p(A) < 0$, when tested with Sobolev maps with $B_p(Df) \leq 0$. This has immediate corollaries on quasiconvexity of energy functionals in non-linear elasticity where, to avoid cavitation and interpenetration of matter, natural minimisers are Sobolev homeomorphisms.

Referencias

- [1] K. Astala, T. Iwaniec, I. Prause, E. Saksman, *O Burkholder integrals, Morrey's problem and quasi-conformal mappings*, J. Amer. Math. Soc. 25 (2012), 507–531.