

A Korn-Sobolev inequality on the Heisenberg group

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Abstract

The Korn-Sobolev inequality on \mathbb{R}^n says that if $u = (u_1, \dots, u_n)$ is a smooth and compactly supported vector field on \mathbb{R}^n , then

$$\|u\|_{L^{n/(n-1)}} \leq C \sum_{1 \leq i, j \leq n} \|\partial_i u_j + \partial_j u_i\|_{L^1}.$$

Using some earlier work of Sagun Chanillo and Jean Van Schaftingen, we extend the above inequality to the Heisenberg group \mathbb{H}^n . This is joint work with Jean Van Schaftingen.