ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

10. Partial Differential Equations

1991 MS Classification: 35B65, 35J70
Strzelecki, Paweł, Warsaw University, Warsaw, Poland

Regularity for subelliptic p-harmonic maps and the ghost of Hardy spaces

We consider the regularity problem for subelliptic, sphere-valued p-harmonic maps, associated with a system of Hörmander vector fields in a domain $\Omega \subset R^n$. For p equal to the homogeneous dimension Q, these maps are locally Hölder continuous.
Our proof replaces the Hardy space – BMO duality (Hardy spaces are unavailable in this context) with an abstract lemma based just on (1) Sobolev inequality, (2) properties of fundamental solution of subelliptic laplacian, and (3) a version of fractional integration.
This is a joint work with P. Hajłasz.
Reference: P. Hajłasz, P. Strzelecki, Subelliptic p-harmonic maps into spheres and the ghost of Hardy spaces. Preprint 36/1997, MPI Leipzig.