Title: On absolutely conformal mappings

Author(s): David Kalaj and Miodrag Mateljević

Let Ω be a domain in $\mathbb{R}^n$. It is proved that, if $u \in C^1(\Omega; \mathbb{R}^n)$ and there holds the formula $\|\nabla u(x)\|^n = n^{n/2} |\det \nabla u(x)|$ in $\Omega$, then for $n \geq 3$ $u$ is a restriction of a Möbius transformation, and for $n = 2$, $u$ is an analytic function. This extends, partially, the well-known Liouville theorem ([?]), which states that if $u \in ACL^n(\Omega; \mathbb{R}^n)$, $n \geq 3$, and the condition $\|\nabla u(x)\|^n = n^{n/2} \det \nabla u(x)$ is satisfied a.e. in $\Omega$, then $u$ is a restriction of a Möbius transformation.

Address:
David Kalaj
University of Montenegro
Faculty of Natural Sciences
and Mathematics
Cetinjski put b.b.
81000 Podgorica
Montenegro

Address:
Miodrag Mateljević
University of Belgrade
Faculty of Mathematics
Studentski trg 16
11000 Belgrade
Serbia