

Josef Daněček, Marek Nikodým

An example of a nonlinear second order elliptic system in three dimension

Comment.Math.Univ.Carolinae 45,3 (2004) 431-442.

Abstract: We provide an explicit example of a nonlinear second order elliptic system of two equations in three dimension to compare two $C^{0,\gamma}$ -regularity theories. We show that, for certain range of parameters, the theory developed in Daněček, Nonlinear Differential Equations Appl. 9 (2002), gives a stronger result than the theory introduced in Koshelev, Lecture Notes in Mathematics, 1614, 1995. In addition, there is a range of parameters where the first theory gives Hölder continuity of solution for all $\gamma < 1$, while the Koshelev theory is not applicable at all.

Keywords: nonlinear elliptic systems, regularity, Campanato-Morrey spaces

AMS Subject Classification: 35J60