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

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.