

## On an open problem concerning regularity for nonlinear geometric PDE's

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I shall discuss an open problem concerning regularity of solutions for two specific (degenerate) elliptic systems of geometric and variational origin: (1) the equations of hypersurfaces of prescribed mean curvature, (2)  $n$ -harmonic maps into compact Riemannian manifolds. Both systems include the  $n$ -Laplace operator and have (either explicitly or implicitly) right hand sides equal to a Jacobian term multiplied by a bounded functions. In a few simple cases, and for  $n = 2$ , the solution to both problems is known (and positive), for  $n > 2$  the answer is known only in a few special cases. The problem is linked to questions in harmonic analysis.