Global Schauder estimates for the p-Laplace system

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An optimal first-order global regularity theory, in spaces of functions defined in terms of oscillations, is established for solutions to Dirichlet problems for the p-Laplace equation and system, with right-hand side in divergence form. The exact mutual dependence among the regularity of the solution, of the datum on the right-hand side, and of the boundary of the domain in these spaces is exhibited. A comprehensive formulation of our results is given in terms of Campanato seminorms. New regularity results in customary function spaces, such as Hölder, BMO and VMO spaces, follow as a consequence. Importantly, the conclusions are new even in the linear case when $p = 2$, and hence the differential operator is the plain Laplacian.
This is a joint work with D.Breit, L.Diening and S.Schwarzacher.

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