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Regularity theory for non-autonomous problems

In isotropic vector-valued generalized Orlicz spaces, the Young function depends only on the length of the vector, i.e. $\Phi(v) = \phi(|v|)$. In the quasi-isotropic case $\Phi(v) \approx \phi(|v|)$, so the dependence is via the length of the vector up to a constant. Jihoon Ok and I obtained maximal local regularity results, i.e. $C^{1,\alpha}$ for some $\alpha \in (0,1)$, of weak solutions or minimizers of

$$\operatorname{div} A(x, Du) = 0,$$

when A is a general quasi-isotropic Young function. With Mikyoung Lee, we have generalized this to the case where continuity assumptions on A are given only in a mean oscillation sense. These results are new even for weighted p-growth, $A(x, \xi) = w(x)|\xi|^{p-2}\xi$ (the linear case was established by Dong and Kim in CPDE, 2017).