MAXIMAL REGULARITY FOR LOCAL MINIMIZERS OF NON-AUTONOMOUS FUNCTIONALS

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ABSTRACT. Establishment of regularity theory for partial differential equations and variational problems with \((p,q)\)-growth condition has been an open issue since the 1980s. In this talk we introduce recent results of \(C^{1,\alpha}\)-regularity for some \(\alpha \in (0,1)\) and \(C^\alpha\)-regularity for any \(\alpha \in (0,1)\) of local minimizers of the functional

\[
v \mapsto \int_\Omega \varphi(x,|Dv|)\,dx,
\]

where \(\varphi\) satisfies a \((p,q)\)-growth condition and sharp regularity conditions. In addition, we introduce regularity results for bounded or Hölder continuous minimizers of the above functional, or weak solutions of PDEs with a generalized Orlicz growth condition.

This is a joint work with Peter Hästö at University of Turku.

REFERENCES

1. P. Hästö and J. Ok: Maximal regularity for local minimizers of non-autonomous functionals, J. Eur. Math. Soc., to appear. ArXiv:1902.00261

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