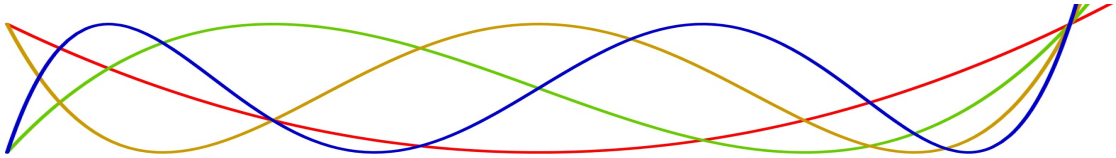

Аналитический семинар лаборатории Чебышева

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Lisa Beck

On the minimization of convex, variational integrals of linear growth

We study the minimization of functionals of the form

$$\int_\Omega f(Du)\,dx$$

with a convex integrand f of linear growth, among all functions in the Sobolev space $W^{1,1}$ with prescribed boundary values. Due to insufficient compactness properties of these Dirichlet classes, the existence of solutions does not follow in a standard way by the direct method in the calculus of variations and might in fact fail, as it is well-known already for the non-parametric minimal surface problem. In such cases, the functional is extended suitably to the space of functions of bounded variation via relaxation, and for the relaxed functional one can in turn guarantee the existence of minimizers. However, in contrast to the original minimization problem, these so-called generalized minimizer might in principle have interior jump discontinuities or might not attain the prescribed boundary values.

After a short introduction to the problem which will also allow graduate students to follow the talk, I want to discuss what is known about the regularity of generalized minimizers. In particular, I will review several results which were obtained in the last years in cooperation with Miroslav Bulicek (Prague), Franz Gmeineder (Bonn), Erika Maringova (Prague), and Thomas Schmidt (Hamburg).

Приглашаются все желающие!