

**RELAXATION AND REGULARITY IN THE  
CALCULUS OF VARIATIONS**

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In this talk we discuss how the behavior of the Lagrangian function  $L(t, u, u')$  in  $u'$  is related to the regularity of the absolutely continuous minimizers to the associated one-dimensional variational problem

$$\min\left\{\int_a^b L(t, u(t), u'(t))dt : u \in AC(a, b), u(a) = u(b) = 0\right\}.$$

We also explain the interplay between the variational problem and its relaxed version, i.e., the variational problem associated to the convexified (in  $u'$ ) Lagrangian.