A. Ioffe

Dept. of Mathematics, Technion - Israel Inst. of Technology, Haifa 32000, Israel
`ioffe@math.technion.ac.il`

Three Theorems on Subdifferentiation of Convex Integral Functionals

The paper is devoted to calculation of subdifferential of the integral functional $\int_T f(t, x) d\mu(t)$ with f being a normal convex integrand. The first theorem gives a precise formula for the case when x is finite dimensional and some qualification condition, which reduce to the general qualification condition for the sum rule of convex analysis, is satisfied. The two other theorems deal with infinite dimensional case and the absence of any qualification conditions and offer some approximations, one for the case when the space of x is reflexive and separable and the other, when it is just separable.

Keywords: Convex function, normal convex integrand, subdifferential, normal cone, fuzzy calculus.

MSC: 90C25, 52A41, 26E15