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$W^{1,1}$ - AND BV -EXTENSION DOMAINS

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ABSTRACT. The theory of Sobolev extension domains begins in the sixties with Calderón and Stein works. In the last years there has been an increasing interest in understanding the geometric properties satisfied by those domains $\Omega \subset \mathbb{R}^n$ from where Sobolev functions can be extended to the whole space. For instance Lipschitz domains are always Sobolev extension domains.

One of the goals of this talk is to show the relation between extension domains for Sobolev functions of class $W^{1,1}$ and for functions of bounded variation BV . These two domains will appear to be the same ones if some extension in a strong sense of sets of finite perimeter is possible. For the case of planar bounded domains this yields to a characterization of $W^{1,1}$ -extension domains as those BV -extension domains for which some rectifiability condition in some part of their boundaries is satisfied. Some consequences will as well be presented.

This is a joint work with professor Tapio Rajala.

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