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Abstracts

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Almost Lipschitz Mappings and Sobolev Mappings Between Metric Spaces

Recently, Piotr Hajłasz has proposed a geometric definition for the Sobolev space $W^{1,p}(X,\mathbb{R})$ where X is a measured metric space. Based on previous work of Calderón and others, he has shown his definition to be equivalent to the classical one if $X = \Omega \subset \mathbb{R}^n$ is a bounded domain with Lipschitz boundary. He has also shown that the Sobolev embedding theorem holds under suitable assumption on X. Since Hajłasz first paper on the subject in 1996, a number of fruitful developments took place.

In 1997, Yurii Reshetnyak has proposed a geometric definition for the class $W^{1,p}(\Omega, Y)$ of Sobolev mappings $f : \Omega \to Y$ from a domain $\Omega \subset \mathbb{R}^n$ to a metric space Y.

My goal in this talk will be to propose a geometric definition for the class $W^{1,p}(X, Y)$ of Sobolev mappings $f : X \to Y$ between two metric spaces which is compatible with both Hajłasz's and Reshetnyak's definitions. I will also show the validity of some classical results under suitable hypothesis on the metric spaces.

I will begin by introducing the notion of almost lipschitz mapping, which is a generalization of the approximately differentiable maps.

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