A first part of Expansions of Sobolev Space Functions.

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1 Abstract

We present a framework useful for the expansion and exploitation of Sobolev Space operators in L-functions.
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2 Equations for Sobolev forms of C^1

Definition 2.1. We suppose the Equation 1 of two natural norms f and g, in a Sobolev space:

$$\left|\left|f\right|\right|_{k,p} = \sum_{i=0}^{k} \mathcal{N} = \left(\sum_{i=0}^{k} \mathcal{N}\right) + \frac{\left|\left|h\right|\right|_{k,p}}{\left|\left|g\right|\right|_{k,p}}. \tag{1}$$

Per the following two corollaries:

Corollary 2.2. *Per case $k = \infty$, one may extend the norm of Equation 1 to the following in Equation 2:*

$$\left|\left|f\right|\right|_{k,p} = \sum_{i=0}^{k} \mathcal{N} = \left(\sum_{i=0}^{k} \mathcal{N}\right). \tag{2}$$

Corollary 2.3. *Thus per Corollary 2.2, there exists an identity for the Equation 1, when:*

$$\left|\frac{\left|\left|h\right|\right|_{k,p}}{\left|\left|g\right|\right|_{k,p}}\right|. \tag{3}$$

Cancels at terms of $k = \infty$ in Equation 1.