FUZZY SCHWARZ INEQUALITY

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Abstract. In the present paper, the fuzzy Schwarz inequality in inner product spaces is derived. It is an extension of the Schwarz inequality, and is described by using a fuzzy norm and a fuzzy inner product defined by Zadeh's extension principle. The fuzzy norm of a fuzzy set is the image of the fuzzy set under the crisp norm, and it is also a fuzzy set. The fuzzy inner product between two fuzzy sets is the image of the two fuzzy sets under the crisp inner product, and it is also a fuzzy set. The Schwarz inequality evaluates the inner product between two vectors in an inner product space by norms of the two vectors. On the other hand, the fuzzy Schwarz inequality evaluates the fuzzy inner product between two fuzzy sets on an inner product space by fuzzy norms of the two fuzzy sets.