

# Hardy and Rellich inequalities for submanifolds in Hadamard spaces

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Some of the most known integral inequalities are the Sobolev, Hardy and Rellich inequalities in Euclidean spaces. In the context of submanifolds, the Sobolev inequality was proved by Michael-Simon and Hoffman-Spruck. Since then, a sort of applications to the submanifold theory has been derived from that inequalities. Years later, Carron obtained a Hardy inequality for submanifolds in Hadamard spaces. In this talk, we will prove the general Hardy and Rellich Inequalities for submanifolds in Hadamard spaces. Some applications will be given and we also discuss the equality cases.