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Jan Kalis* (kalis@math.fau.edu), Department of Mathematical Sciences, FAU, 777 Glades Road, Boca Raton, FL 33431. *Sobolev Embeddings via Poincaré Inequality.*

We show that Poincaré inequality implies the recent sharp rearrangement inequality of Bastero-Milman-Ruiz in the context of Sobolev spaces on metric spaces. As a consequence we show a best possible Sobolev embedding for Hörmander vector fields. For classical Sobolev spaces our method gives sharp Sobolev embeddings without assuming that the Sobolev functions vanish at the boundary. This work is part of a PhD thesis being prepared under the supervision of Professor Mario Milman. (Received February 07, 2006)