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Michael Hinz* (Michael.Hinz.1@uni-jena.de). *1-forms on fractals and harmonic spaces.*

The talk discusses substitutes for differential 1-forms on possibly non-smooth spaces. If a suitable energy functional is given, 1-forms may be defined using a certain tensor space endowed with a norm based on the energy measure. The construction is a variant of the one introduced by Cipriani and Sauvageot and studied further by Ionescu/Rogers/Teplyaev and Cipriani/Guido/Isola/Sauvageot. It is consistent with the classical notions and has nice algebraic and continuity properties. In connection with open covers it reflects some topological features of the base space. The present results apply also to some fractals which are not necessarily finitely ramified, such as Sierpinski carpets. (Received June 28, 2011)