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Search or Article-id (Help | Advanced search) arXiv.org > math > arXiv:1107.3826 - Go! All papers Mathematics > Classical Analysis and ODEs Download: PDF **Algebra properties for Sobolev** PostScript Other formats spaces- Applications to semilinear Current browse context: PDE's on manifolds math.CA < prev | next > new | recent | 1107 Nadine Badr (ICJ), Frederic Bernicot (LPP), Emmanuel Russ Change to browse by: (LATP, IF) math (Submitted on 19 Jul 2011) References & Citations In this work, we aim to prove algebra properties for generalized Sobolev NASA ADS spaces \$W^{s,p} \cap L^\infty\$ on a Riemannian manifold, where \$W^{s,p}\$ is of Bessel-type \$W^{s,p}:=(1+L)^{-s/m}(L^p)\$ with an operator \$L\$ generating Bookmark(what is this?) a heat semigroup satisfying off-diagonal decays. We don't require any 📃 🕸 🗶 🚾 🖬 💼 🚽 😭 💇 assumption on the gradient of the semigroup. To do that, we propose two Science WISE different approaches (one by a new kind of paraproducts and another one using functionals). We also give a chain rule and study the action of nonlinearities on these spaces and give applications to semi-linear PDEs. These results are new on Riemannian manifolds (with a non bounded geometry) and even in the Euclidean space for Sobolev spaces associated to second order uniformly elliptic operators in divergence form.

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