

**Savin, A. Yu.; Sternin, B. Yu.**

**Index of Sobolev problems on manifolds with many-dimensional singularities.** (English. Russian original) [Zbl 1298.58015](#)

*Differ. Equ.* 50, No. 2, 232-245 (2014); translation from *Differ. Uravn.* 50, No. 2, 229-241 (2014).

The theory of Sobolev problems is a theory of linear partial differential equations having boundary conditions on submanifolds of the initial smooth closed manifold. Later on, Sobolev problems were studied by the second author when the submanifold has singularities. The aim of that paper is to derive an index formula for the problem mentioned in the title. The authors reduce the Sobolev problem to a submanifold via pseudodifferential operators ( $\psi$  do) and translators which are not  $\psi$  do. Having in mind the theory of the translators including the corresponding index formulas see [the authors, *ibid.* 48, No. 12, 1577–1585 (2012); translation from *Differ. Uravn.* 48, No. 12, 1612–1620 (2012; [Zbl 1267.35269](#)) and *ibid.* 49, No. 4, 494–509 (2013); translation from *Differ. Uravn.* 49, No. 4, 513–527 (2013; [Zbl 1274.58006](#))], they obtain in Theorem 2 explicit index formula for the elliptic Sobolev problem under investigation.

Reviewer: [Petar Popivanov \(Sofia\)](#)

**MSC:**

[58J20](#) Index theory and related fixed-point theorems on manifolds

[58J05](#) Elliptic equations on manifolds, general theory

[58J32](#) Boundary value problems on manifolds

**Keywords:**

[Sobolev \(co\)boundary problem](#); [index problem](#); [elliptic Sobolev problem](#); [manifold with singularities](#)

**Full Text:** [DOI](#)

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