

1015-35-181

Thomas Krainer* (krainer@math.uni-potsdam.de), Institute of Mathematics, University of Potsdam, POB 60 15 53, D-14415 Potsdam, Germany. *Elliptic boundary value problems on manifolds with polycylindrical ends.*

We investigate general elliptic operators subject to Shapiro-Lopatinsky elliptic boundary conditions on manifolds with polycylindrical ends. We derive Fredholm criteria and regularity results in appropriate Sobolev spaces. This is achieved by compactifying the manifold with polycylindrical ends to a manifold with corners. The operators then turn out to be so called “cusp operators”, i.e. they are near corner points of codimension q generated by the C^∞ -functions and the vector fields of the form $x_l^2 \partial_{x_l}$, $l = 1, \dots, q$, and ∂_{y_j} , $j = 1, \dots, n - q$, where $y = (y_1, \dots, y_{n-q})$ is the variable in an open set of \mathbb{R}^{n-q} , and $x = (x_1, \dots, x_q) \in \overline{\mathbb{R}}_+^q$.

Without the presence of boundary conditions, such operators were considered by Richard Melrose and Victor Nistor in 1996 in the context of index-theoretical investigations on manifolds with corners of codimension 1 (unpublished), and in the case of higher codimensions by Robert Lauter and Sergiu Moroianu (2002).

The preprint of the material presented in this talk is accessible from <http://arXiv.org> under [math.AP/0508516](http://arXiv.org/abs/math.AP/0508516) (2005). (Received February 04, 2006)