

Families of operators and the unbounded Kasparov product

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We consider a family of unbounded self-adjoint operators parametrised by a manifold M , which represents a class in the odd K -theory of M . We also take a Dirac-type operator on M , representing a class in the odd K -homology on M . In the case where M is the unit interval, the class of the family describes the spectral flow of the family, and the pairing with K -homology can be thought of as 'computing' the spectral flow. We would like to obtain the pairing of these classes on general manifolds by constructing an unbounded representative for their Kasparov product. This construction is known to work under the assumption that the family is differentiable (in a suitable sense). Since spectral flow is well-defined without any assumption of differentiability, we aim to prove the same result for a family which is only required to be continuous.