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**Dimitri Shlyakhtenko\*** ([shlyakht@math.ucla.edu](mailto:shlyakht@math.ucla.edu)), Department of Mathematics, UCLA, Los Angeles, CA 90095. *A (co)homology theory for subfactors and planar algebras.*

The so-called standard invariant (or planar algebra) of a subfactor is a rich mathematical object, introduced by Jones, which captures a kind of "quantum symmetry" of the underlying subfactor inclusion. In our joint work with S. Popa and S. Vaes, we introduce a (co)homology theory for these objects. This in particular leads to the theory of  $L^2$ -Betti numbers in this context. The theory connects well with approximation properties of the underlying objects, such as an analog of property T, the Haagerup property, and amenability. Our work provides a common framework for cohomology theories for groups, equivalence relations as well as quantum groups. We also present some computations. (Received February 05, 2018)