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„Limits of topological invariants in the p-adic numbers.“

Abstract:

We introduce new invariants of topological spaces: the p-adic Betti numbers and the p-adic torsion. These invariants are p-adic limits of classical topological invariants and are, in this respect, similar to L2-invariants.

In other aspects, however, the p-adic invariants behave like antagonists of L2-invariants. For instance, p-adic Betti numbers can distinguish certain amenable groups, but are equal for all free groups. We discuss some examples and open problems and we explain how the p-adic Betti numbers can be used to study the growth of ordinary Betti numbers in towers of finite sheeted covering spaces.