Dynamics and cohomology of foliations

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The cohomology invariants for foliations are used to "classify" foliations, and also give insight into their dynamical properties. In particular, one of the open questions is about the cohomology invariants associated to minimal sets of smooth foliations. It has been proven that in codimension one, the Godbillon-Vey invariant of a minimal set is non-zero only if the minimal set has interior, hence equals the entire manifold so the foliation is minimal. In higher codimension, similar results about the values of the secondary classes on minimal sets are unknown. In this talk, we will discuss the case of codimension two and above, and show there are exceptional minimal sets with non-zero Cheeger-Simons secondary invariants.