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Transverse Euler classes of foliations on nonatomic foliation cycles.

Differential topology, foliations, and group actions (*Rio de Janeiro*, 1992), 29–39, *Contemp. Math.*, 161, *Amer. Math. Soc., Providence, RI*, 1994.
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For a $(p+q)$-dimensional manifold with a p-dimensional foliation $\mathcal{F}$, a foliation cycle is a p-dimensional cycle as defined by D. Sullivan [Invent. Math. **36** (1976), 225–255; MR **55** #6440]. There is a canonical bijective correspondence between foliation cycles and transverse invariant measures.

Compact leaves give rise to foliation cycles (corresponding to atomic transverse invariant measures). A foliation cycle is called almost compact if it is supported in a tubular neighborhood N (normal disk bundle) of a closed p-dimensional submanifold K with fiber disks being transverse to the foliation.

The authors investigate the average Euler class with respect to a foliation cycle C which is the cap product of the Euler class $e(\nu\mathcal{F})$ of the normal bundle of the foliation and the foliation cycle C. They show that if C is almost compact and diffuse (i.e., not supported on a leaf isotopic to K in N), then the average Euler class vanishes. This was shown in their previous paper [Indiana Univ. Math. J. **40** (1991), no. 4, 1169–1183; MR 93b:58114] as a corollary to the following vanishing theorem: If a foliation has two foliation cycles and at least one of them is non-atomic, then their homological intersection vanishes. In the present paper, the authors use the blowing-up, study its invariant measures and show the vanishing of the average Euler class geometrically. Using this method they also show the above-mentioned vanishing theorem.

{For the entire collection see 94j:57003}

Reviewed by *Takashi Tsuboi*