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On the secondary classes of foliations with trivial normal bundles.
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57R30 (57R20)

The author greatly extends our knowledge about the nontriviality of exotic characteristic classes of foliations. In particular he shows (1) the independence of a large subset of rigid classes for foliations with trivial normal bundle (Theorem 1); (2) the independent variation of a large subset of variable classes for foliations with trivial normal bundle (Theorem 2); (3) that all of the characteristic classes for Riemannian foliations with trivial normal bundle are independent (Theorem 3); and (4) that for $q \equiv 2, 3 \bmod 4$ all of the variable classes for Riemannian foliations with trivial normal bundle are independently variable (Theorem 4), and for $n \geq 2$ all of the variable classes for complex foliations with trivial normal bundle are independently variable (Theorem 5).

The author proves a permanence theorem which relates the characteristic classes of a foliation with trivial normal bundle relative to two different framings of the normal bundle. This enables the author to deduce that the independence (independent variation) of a collection S of exotic classes of a foliation F on M with trivial normal bundle implies the independence (independent variation) of a much larger collection T of classes for the induced foliation on $M \times G$ (for appropriate G). The author obtains his initial data about F and S from direct construction and from previously studied foliations.

Reviewed by *Connor Lazarov*