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Hurder, S. (1-ILCC); **Lehmann, D. [Lehmann, Daniel]** (F-LILL)
Homotopy characteristic classes of foliations.
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The authors obtain new higher-order cohomology invariants of concordance classes of foliations by using the minimal model theory, and establish the existence of uncountable families of distinct foliations on a much wider class of manifolds than had been previously shown by Hurder [same journal **29** (1985), no. 1, 108–133; MR 86m:57028].

For the characteristic homomorphism $f_{\mathcal{F}}\colon WO_q \to \Omega_{\mathrm{DR}}(V)$ of a foliation $\mathcal{F}$ on a manifold V, and for a minimal model $\rho_q\colon \mathcal{M}O_q \to WO_q$, the homotopy class $[f_{\mathcal{F}} \circ \rho_q]$ is regarded as a fundamental differential invariant of a foliation. Following the morphism $f_{\mathcal{F}}^*$ on cohomology and the dual homotopy invariants for $\mathcal{F}$, in the present paper, a third approximation to the invariant $[f_{\mathcal{F}} \circ \rho_q]$ is constructed by considering the induced maps on Postnikov k-invariants of the model $\mathcal{M}O_q$. This produces, as tertiary invariants, cohomology classes which can be nontrivial in degrees $> 2q + q^2$ unlike the map $f_{\mathcal{F}}^*$, and an enormous number of invariants in the dual homotopy spaces $\pi^p(WO_q)$.

Many examples are shown. To obtain them, the authors give simple conditions on the homotopy type of a manifold V, called p-splitting, which are sufficient to guarantee that if V has at least one codimension-q foliation, then V has many parameter families of nonconcordant foliations, detected only by the tertiary invariants.

Reviewed by *H. Suzuki*