

DUAL THURSTON NORM OF EULER CLASSES OF FOLIATIONS ON CLOSED 3-MANIFOLDS

Dmitry V. Bolotov

(B. Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences of Ukraine, 47 Nauky Ave., Kharkiv, 61103, Ukraine)

E-mail: bolotov@ilt.kharkov.ua

In this work we give an upper bound estimate on the dual Thurston norm of the Euler class of an arbitrary smooth foliation $\mathcal{F}$ of dimension one defined on a closed three-dimensional orientable irreducible atoroidal Riemannian manifold M^3 .

We present the following result.

Theorem 1. *Let (M^3, g) be a closed oriented three-dimensional irreducible atoroidal Riemannian manifold equipped by a two-dimensional transversely oriented foliation $\mathcal{F}$, whose leaves have the modulus of a mean curvature H bounded above by the constant $H_0 \geq 0$, and M^3 satisfies the following conditions:*

- (1) $Vol(M^3) \leq V_0$;
- (2) $k_0 \leq K \leq K_0$;
- (3) $inj(M^3) \geq i_0$.
- (4) $stsys_1(M^3) \geq s_0$

for some fixed constants $V_0 > 0, i_0 > 0, k_0 < K_0, s_0 > 0$, bounding the volume $Vol(M^3)$, the sectional curvature K of M^3 , the injectivity radius $inj(M^3)$ and the 1-dimensional stable systole $stsys_1(M^3)$.

Then there exists the constant $C(H_0, V_0, i_0, k_0, K_0, s_0)$ such that the dual Thurston norm $\|e(T\mathcal{F})\|_{Th}^$ of the Euler class $e(T\mathcal{F})$ of the tangent to $\mathcal{F}$ distribution $T\mathcal{F}$ satisfies the following:*

$$\|e(T\mathcal{F})\|_{Th}^* \leq C.$$