MR1411133 (97j:58122) 58F18 (32L30 57R30)

Ghys, Étienne (F-ENSLY)

On transversely holomorphic flows. II.

Invent. Math. **126** (1996), *no. 2,* 281–286.

This paper complements the work of M. Brunella [Part I, Invent. Math. **126** (1996), no. 2, 265–279; MR1411132 (97j:58121); see the preceding review] and completes the classification of holomorphic one-dimensional orientable foliations on closed connected three-manifolds M, the holonomy pseudogroup of the foliation being given by biholomorphisms between open sets of $\mathbf{C}$. Assuming $H^2(M;\mathcal{O}) \neq 0$ (where $\mathcal{O}$ is the sheaf of germs of functions which are constant along the leaves in the transverse direction), the author proves that the foliation is Riemannian, i.e., there is a Riemannian metric on the normal bundle which is invariant under holonomy. Using this result and the classification of Riemannian foliations in dimension 3 given by Y. Carrière [Astérisque No. 116 (1984), 31–52; MR0755161 (86m:58125a)], the author concludes that the only transversely holomorphic foliations on closed connected orientable 3-manifolds are those in the list of Brunella.

Reviewed by *M. G. Soares*