Meeting: 998, Houston, Texas, SS 20A, Special Session on Differential Geometry

998-58-212 **Jesús A. Álvarez López*** (jalvarez@usc.es), Departamento de Xeometría e Topoloxía, Facultade de Matemática s, Campus Universitario Sur, 15706 Santiago, A Coruá, Spain, and **Yuri A. Kordyukov** (yurikor@math.ugatu.ac.ru), Department of Mathematics, 12 K. Marx str., 450025 Ufa, Russia. *A trace formula for Lie foliations.*

For a Lie foliation $\mathcal{F}$ on a closed manifold M, its transverse Lie structure can be considered as an "action up to leafwise homotopies" of its structural Lie group G on $(M,\mathcal{F})$. This yields an action on the reduced leafwise cohomology $\overline{H}^{\bullet}(\mathcal{F})$. By using leafwise Hodge theory, the trace of this action on each $\overline{H}^{i}(\mathcal{F})$ can be defined as a distribution β^i_{dis} on G, which can be called distributional trace or distributional Betti number. The corresponding Lefschetz distribution or distributional Euler characteristic is $\chi_{\mathrm{dis}} = \sum_i (-1)^i \beta^i_{\mathrm{dis}}$. These distributions are relevant because $\overline{H}^{i}(\mathcal{F})$ may be of infinite dimension, even when the leaves are dense, and thus its usual Euler characteristic or Lefschetz number makes no sense in general. The distribution χ_{dis} is described in terms of Connes' Euler characteristic and a dynamical Lefschetz trace formula. Finally, we speculate about possible generalizations of these ideas. (Received February 27, 2004)