CONTACT STRUCTURES ON $T^2 \times M$ AND CONTACT HOMOLOGY

FRÉDÉRIC BOURGEOIS

We show that, for any contact manifold M and for any Riemann surface Σ of genus at least 1, the product $\Sigma \times M$ admits a contact structure. In particular, tori T^{2n+1} are contact manifolds [1].

We then compute the contact homology of these contact structures, for some manifolds $T^2 \times M$, using Morse-Bott techniques [2]. In particular, we obtain infinitely many contact structures, pairwise non isomorphic, on T^5 and $T^2 \times S^{2n-3}$, in the trivial formal homotopy class.

References

[1] F. Bourgeois, Odd dimensional tori are contact manifolds, *Int. Math. Res. Not.* **2002** No. 30, 1571–1574.

[2] F. Bourgeois, A Morse-Bott approach to contact homology, *Ph.D. Thesis, Stanford University*, 2002.

Frédéric Bourgeois, Centre de Mathématiques, Ecole Polytechnique, 91128 Palaiseau Cedex, France

E-mail address: `fbourgeo@math.polytechnique.fr`