Zentralblatt–MATH

Dasbach, Oliver T.; Mangum, Brian S.

The automorphism group of a free group is not subgroup separable. (English) Gilman, Jane (ed.) et al., Knots, braids, and mapping class groups - papers dedicated to Joan S. Birman. Proceedings of a conference in low dimensional topology in honor of Joan S. Birman's 70th birthday, New York, NY, USA, March 14-15, 1998. Providence, RI: American Mathematical Society (AMS). AMS/IP Stud. Adv. Math. 24, 23-27 (2001). [ISBN 0-8218-2966-1/pbk; ISSN 1089-3288]

The main result of the paper is announced in the title: the automorphism group of a nonabelian free group is not subgroup separable (though it is well known to be residually finite). For the proof, an explicit example due to Burns, Karras and Solitar of a non subgroup separable group (which is the fundamental group of a punctured torus bundle over the circle) is realized as a subgroup of the automorphism group of the free group of rank two. As a consequence, also the braid groups B_n are not subgroup separable, for $n \geq 4$.

Bruno Zimmermann (Trieste)

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