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**Rémi Bernard Coulon\*** ([remi.coulon@vanderbilt.edu](mailto:remi.coulon@vanderbilt.edu)) and **Arnaud Hilion**. *Outer automorphism group of Burnside groups.*

The free Burnside group  $\mathbf{B}_r(n)$  of rank  $r$  and exponent  $n$  is the quotient of the free group of rank  $r$  by the subgroup generated by the  $n$ -th powers of all elements. It was introduced at the beginning of the 20th century by W. Burnside who asked whether this group should be finite or not. It is now known that these groups are infinite for  $r \geq 2$  and  $n$  “large enough”. In this talk, we are interested in the outer automorphism group of  $\mathbf{B}_r(n)$ . In particular we focused on the following questions. What kind of subgroups does  $\text{Out}(\mathbf{B}_r(n))$  contain? What are its elements of infinite order? (Received January 09, 2012)