▸ ABDEREZAK OULD HOUCINE, *Algebraic closure and ampleness in free groups.*
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The first part deals with the algebraic and definable closure (*acl* and *dcl*) in free groups. We prove that if F is a free group of finite rank and A is a nonabelian subgroup of F such that F is freely indecomposable with respect to A, then $acl(A)$ is exactly the vertex group in the cyclic malnormal JSJ-decomposition of F with respect to A. We show that $dcl(A)$ is a free factor of $acl(A)$ and in particular they coincide in a free group of rank 2. In the general case, we show that a free group whose rank is greater than 4 contains a subgroup A such that $acl(A) \neq dcl(A)$. This answers a question of Z. Sela. This is a joint work with D. Vallino.

The second part deals with ampleness in free groups where the notion of the algebraic closure intervenes in a fundamental way. Ampleness is a property that reflects the existence of geometric configurations behaving very much like projective space over a field. Pillay showed that the theory of the free group is 2-ample and conjectured