

ATELIER « ÉQUATIONS ET PROPRIÉTÉS DU PREMIER ORDRE DANS LES GROUPES »  
11 – 15 OCTOBRE 2010

WORKSHOP ON “EQUATIONS AND FIRST-ORDER PROPERTIES IN GROUPS”  
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## Complexity of Propositional Proofs

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The underlying question of propositional proof complexity is amazingly simple : when interesting propositional tautologies possess efficient proofs in a given propositional proof system ? This theory makes an integral part of more general theory of feasible provability, the latter being widely considered as the proof theory for the world of efficiently computable objects. Other motivations for studying complexity of propositional proofs come from algebra, automated theorem proving and, of course, computational (especially circuit) complexity.

Given its mixed origin, the methods currently employed in this area are also very diverse. We will try to illustrate some of them and give the audience at least some feeling of the current state of the art in the area. A special attention will be paid to algebraic and geometric proof systems, such as Polynomial Calculus and various proof systems inspired by Lovasz-Schrijver relaxation procedures (some of the intriguing connections to the classical computational complexity will be reviewed on October 15).

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