DALHOUSIE MATHEMATICS COLLOQUIUM

Thursday March 14 2019, 2:30 pm, Chase 319

Speaker: Mayada Shahada
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On polynomials that are not quite an identity on an associative algebra

Beginning in 1940, Philip Hall considered many problems on the *verbal and marginal* subgroups of a group G. These problems stimulated a broad stream of deep and interesting research in group theory that, in fact, remains highly active today. For instance, Hall conjectured that if a group G has a finite number of evaluations of a word θ, then the subgroup generated by these evaluations (called the verbal subgroup) is also finite. Although many partial positive solutions of this conjecture have been since proved, the conjecture in its most general form was eventually refuted by Ivanov in 1989.

Similar theory to Hall's can be easily constructed for Lie algebras, although not all results can be carried over unchanged. In 1974, Ian Stewart was first to consider (non-associative) algebraic analogues to the concepts of verbal and marginal subgroups and discussed the natural Lie-theoretic analogue to Hall's results. In this talk, we will consider Hall's problems in the category of associative algebras and will introduce many interesting results. We will see also how these results branched further into other attractive research problems. Joint with E. Jespers and D.M. Riley.