Professor Nicolás Andruskiewitsch

University of Cordoba, Argentina

Visiting Atlantic Algebra Centre

May 17 - May 24, 2008

Professor Nicolás Andruskiewitsch is a renowned mathematician whose research interests belong to the rapidly developing area of Hopf Algebras. His results have been published in the most prestigious mathematical journals, including Annals of Mathematics, Advances of Mathematics, Journal of Algebra, Proceedings and Transactions of AMS, Canadian Journal of Mathematics and several Journals of Mathematical Physics. In the abstract of his mini course below he describes the area where he recently, in collaboration

with Professor Hans-Jürgen Schneider, obtained remarkable results on the classification of pointed Hopf algebras.

We are looking forward to his mini course at Atlantic Algebra Centre during his visit of Memorial University of Newfoundland, May 17 - May 24, 2008.

AAC Mini Course
Introduction to pointed Hopf algebras

Hopf algebras were first discovered in connection with algebraic groups in positive characteristic in the 50's. The discovery of quantum groups by Drinfeld and Jimbo around 1983 had, among other consecuences, a deep impact in the theory of Hopf algebras. N. Andruskiewitsch and H.-J. Schneider launched a program, around 1997, to classify pointed Hopf algebras over C, a class that includes the quantized enveloping algebras of Drinfeld-Jimbo and their finite-dimensional conuterparts discovered by Lusztig. The main motivation was to show that pointed Hopf algebras are essentially quantum groups. This program was developed in a series of papers with two main results:

1. the classification of finite-dimensional pointed Hopf algebras, with abelian group, whose order has prime divisors greater than 7.

2. the classification of pointed Hopf algebras, with finite Gelfand-Kirillov dimension and with abelian group, that are domains.

In both cases the result says all Hopf algebras in the relevant class are quantum groups.

In this course the Lifting Method for the classification of pointed Hopf algebras will be developed from scratch, as well as some of the main results obtained and sketched above.

At the end, some more recent work in extending those results in several directions will be presented.

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Everyone is invited! A limited support is available for the mathematics students in Atlantic Canada. Please provide a recommendation letter from your supervisor.