

Mathematisches Kolloquium

Im Rahmen des Kolloquiums spricht **Dr. Hennie Poulisse**
Shell Research, NL

über das Thema: **Algebraic Oil**

Kurzfassung:

The research activities at Shell Research are done mainly in support of the exploration and production (E&P) of oil and gas. In recent years a new approach has been directed to inferring relationships concerning the progress of the production system on the basis of observations made of the system. For numerical calculations, the natural mathematical environment to interpret the obtained results is a (real or complex) vector space. But in view of the enormous complexity of and the interrelationships between the different objects comprising the system, this algebraic structure is too simple.

This has led to the idea to create a 'larger' interpretation environment by allowing the parameters to be elements of a polynomial ring. Inspired by the rapid developments taking place in Algebraic Geometry and Commutative Algebra, a four-year research plan was formulated between Shell Research, the University of Dortmund (notably Prof. Martin Kreuzer and his co-workers) and Genova University. It consists of a sequence of (Algebra, E&P Application) pairs addressing urgent and challenging problems for Shell's production and exploration activities. The importance and originality of this plan has been acknowledged by the Shell Foundation which funds the cooperation.

In this presentation, the new Algebraic Oil development is placed into the proper context. The incentive is substantiated by an important problem in oil production, the 'Decomposition Problem': the total production of a group of wells has to be allocated to the separate contributions. Subsequently, the other (Algebra, E&P Application) pairs are addressed. The University of Dortmund takes the lead in the area of Computational Commutative Algebra against the background of a fascinating, unprecedented project in which extremes meet: mathematics students visit offshore oil production platforms and are confronted with the hard reality of basic production engineering.

Termin: Montag, 7. November 2005, 17.15 Uhr
Ort: Hörsaal M/E 28, Mathematikgebäude
Tee: 16.45 Uhr, Raum M 614, Mathematikgebäude

Zu diesem Vortrag laden die Dozenten des Fachbereichs Mathematik ein.