

**Seminar**  
**Computational Algebra**  
Lehrstuhl D für Mathematik  
Prof. Dr. Eva Zerz, Dr. Viktor Levandovskyy

**Vortragsankündigung**

- Zeit und Ort:* **Mi., 9.12.2009, 11:45 – 13:15** in **Fo 7**, Kármán Gebäude
- Vortragender:* **Prof. Dr. Roberto La Scala, Universität Bari, Italien**
- Titel:* **Letterplace ideals and non-commutative Gröbner bases**
- Inhalt:* We describe a 1-to-1 correspondence between graded two-sided ideals of the free associative algebra and some class of ideals of the algebra of polynomials whose variables are double-indexed commuting ones.  
We call these ideals the “letterplace analogues” of graded two-sided ideals. We study the behaviour of the generating sets of the ideals under this correspondence and in particular that of the Gröbner bases. In this way, we obtain a new method to compute non-commutative homogeneous Gröbner bases via polynomials in commuting variables. Since the letterplace ideals are stable under the action of a monoid of endomorphisms of the polynomial algebra, the proposed algorithm results an example of a Buchberger procedure “reduced by symmetry”.  
Owing to portability of our algorithm in any computer algebra system able to compute commutative Gröbner bases, we propose an implementation of our method in SINGULAR. By means of a testing set, we prove finally that our method is more effective than other systems, able to compute non-commutative Gröbner bases.

Wir laden alle Interessierten herzlich zu diesem Vortrag ein.