

# Oberseminar zur Algebra

Lehrstühle A und D für Mathematik

## Vortragsankündigung

zur folgenden Vortragsreihe:

*Zeit und Ort:* **Mittwoch, 23. Juni 2010, 10.00 Uhr bis 11.30 Uhr** in SG 12  
**Donnerstag, 24. Juni, 14.00 Uhr bis 15.30 Uhr** in klPhys.

*Vortragender:* **Frank Grosshans**

*Titel:* **Vector invariants in arbitrary characteristic**

*Inhalt:* Let  $k$  be an algebraically closed field of arbitrary characteristic and let  $G$  be a subgroup of  $GL(n, k)$ . When  $\text{char}(k) = 0$ , a theorem of Hermann Weyl states that the polynomial invariants of  $G$  for any number of vectors, say  $m$ , are known once the polynomial invariants of  $G$  for  $n$  vectors are known. In fact, the invariants of  $m$  vectors when  $m > n$  can be obtained from those of  $n$  vectors by “polarization”. However, Weyl’s Theorem is not true when the characteristic of  $k$  is positive. Consequently, our main purpose is to explain how Weyl’s theorem can be modified so as to apply to fields of arbitrary characteristic. Namely, we shall show that polarization determines the invariants of  $m$  vectors up to  $p$ th-roots. We give special attention to the case of finite groups. We also discuss various tools needed in the development of this theory, especially as coming from representation theory.

Wir laden alle Interessierten herzlich zu diesen Vorträgen ein.