



Einladung

Im Rahmen des Schwerpunktskolloquiums „Geometrie und Algebra“ hält

Frau Carla Fidalgo
Universität Coimbra (Portugal)

am **Donnerstag, dem 3. Dezember 2009**, einen Vortrag zum Thema:

Positive semidefinite diagonal minus tail forms are sums of squares

Der Vortrag findet um **17.00 Uhr** in Raum **F 426** statt.

Es wird Gelegenheit gegeben, sich vorher (ab 16.30 Uhr)
im Commoncenter F 441 bei Tee und Kaffee zu treffen.

Alle Interessenten sind herzlich eingeladen.

Andrea Barjasic

Beauftragte für das Kolloquium

Abstract:

By a *diagonal minus tail* form (of even degree) we understand a real homogeneous polynomial $F(x_1, \dots, x_n) = F(\underline{x}) = D(\underline{x}) - T(\underline{x})$, where the *diagonal* part $D(\underline{x})$ is a sum of terms of the form $b_i x_i^{2d}$ with all $b_i \geq 0$ and the *tail* $T(\underline{x})$ a sum of terms $a_{i_1 i_2 \dots i_n} x_1^{i_1} \dots x_n^{i_n}$ with $a_{i_1 i_2 \dots i_n} > 0$ and at least two $i_\nu \geq 1$. We show that an arbitrary change of the signs of the tail terms of a positive semidefinite diagonal minus tail form will result in a sum of squares (sos) of polynomials. The work uses Reznick's theory of agiforms and gives easily tested sufficient conditions for a form to be sos; one of these is piecewise linear in the coefficients of a polynomial and reminiscent of Lasserre's recent conditions but proved in completely a different manner.