



Institut für  
Angewandte Mathematik



Leibniz  
Universität  
Hannover

Institut für Angewandte Mathematik  
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## Oberseminar Analysis und Theoretische Physik

**Dr. Christian Stinner  
(TU Kaiserslautern)**

### **Finite Time versus Infinite Time Blowup for a Fully Parabolic Keller-Segel System**

#### **Abstract:**

Several variants of the Keller-Segel model are used in mathematical biology to describe the evolution of cell populations due to both diffusion and chemo-tactic movement. In particular, the emergence of cell aggregation is related to blowup of the solution. Critical nonlinearities with respect to the occurrence of blowup had been identified for a quasilinear parabolic-parabolic Keller-Segel system, but it was not known whether the solution blows up in finite or infinite time. We show that indeed both blowup types appear and that the growth of the chemotactic sensitivity function is essential to distinguish between them. We provide conditions for the existence of each blowup type and discuss their optimality. An important ingredient of our proof is a detailed analysis of the Liapunov functional. This is a joint work with T. Cieslak (Warsaw).

**Dienstag, 06.01.2015, 15:00 Uhr, Raum g005  
Hauptgebäude der Universität**

Über Ihren Besuch würden sich freuen:

**Prof. Dr. Wolfram Bauer  
Prof. Dr. Joachim Escher  
Prof. Dr. Olaf Lechtenfeld  
Prof. Dr. Elmar Schrohe  
Prof. Dr. Christoph Walker**