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## DK Seminar

Jun 07, 2017, 14:15 - 15:45  
University of Vienna,  
Oskar-Morgenstern-Platz 1, HR 2

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### Discrete blow-up behaviour for the Keller-Segel system

A short introduction to the Keller-Segel model is given and first results addressing the existence and blow-up in finite time in the semi-discrete case are presented. The Keller-Segel system is a macroscopic model which describes the collective motion of cells, usually bacteria or amoebas, guided by chemicals. The concept is widespread in nature and is called chemotaxis. One important outcome of this process is the aggregation of cells, which can lead to so called chemotactic collapse. Mathematically, this is described by a set of non-linear non-local equations for which the solutions show a dichotomy in the blow-up behaviour corresponding to the above mentioned chemotactic collapse. The blow-up dichotomy can be shown by a virial argument and this talk is concerned with a first semi-discrete analysis towards a structure preserving numerical scheme which translates this continuous argument into the discrete case.