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b UNIVERSITÄT BERN

Philosophischnaturwissenschaftliche Fakultät Departement Mathematik Mathematisches Institut

LUDWIG SCHLÄFLI LECTURE 2008



Monday, December 8, 2008 17.15 h, Lecture Room B6 Institute of Mathematics Exact Sciences Building (ExWi) Sidlerstrasse 5 University of Bern

Dinner at 19.15 h at the Restaurant Casino, Bern. Registration for dinner till December 1, 2008: math@math.unibe.ch

PROFESSOR DR. GÜNTER M. ZIEGLER (TU BERLIN)

CHARTING THE SPACE OF D-DIMENSIONAL POYTOPES

Abstract: Schläfli's discovery of the "Euler-Poincaré relation" for d-dimensional polytopes leads us to ask: "How do the f-vectors for d-dimensional polytopes look like?"

For the case of 3-dimensional polytopes there is a classical answer by Steinitz (1906), which also serves as a model for the answers we would like to achieve.

For 4-dimensional polytopes, everything boils down to questions about "fatness".

For centrally-symmetric polytopes, there are three conjectures of increasing strength by Kalai --- we prove one for d=4, and disprove the other two.

(Joint work with Raman Sanyal and Axel Werner)

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