Seminar in Summersemester 2015

Master seminar on Real Algebraic Geometry.
Prof. Dr. Salma Kuhlmann, Mitarbeiterinnen: Dr. Maria Infusino, Dr. Charu Goel

2 hours, Thursday: 11.45 – 13.15, Room F426

The aim of this cycle of seminars is to develop in more details some topics that were introduced in the course "Real Algebraic Geometry I" from the WS 2014-15 and that could be a starting point for a master thesis in the research stream investigated in the Schwerpunkt Reelle Geometrie und Algebra. The talks could focus for instance on the cylindrical decomposition of semialgebraic sets, the Hilbert 1888 theorem for ternary quartics, the representation of positive polynomials as sum of squares (Positivstellensätze), some aspects of the moment problem (e.g. the proof of Haviland's theorem, the original operator theoretical proof of the Schmüdgen theorem of 1991). Each talk will provide a review of the results already known in literature about one of these topics and point out some related open questions.

Target group
The seminar is primarily aimed at master students, but is also suitable for students of Diplom and Lehramt.

References
- J. Bochnak, M. Coste, M. Roy, Real Algebraic Geometry, Ergebnisse der Mathematik und ihrer Grenzgebiete (3), Springer Vol. 36, Berlin,1998
- S. Kuhlmann, Notes on Real Algebraic Geometry (WS 2009-10) available online at: http://www.math.uni-konstanz.de/~kuhlmann/Lehre/WS09-10-ReelleAlgGeo/Skripts.htm
- S. Kuhlmann, Notes on Positive Polynomials (SS 2010) available online at: http://www.math.uni-konstanz.de/~kuhlmann/Lehre/SS10-PosPoly/Skripts.htm
- M. Marshall, Positive Polynomials and Sum of Squares, Vol. 146, Mathematical Surveys and Monographs, AMS, 2008
- R.K. Rajwade, Squares, LMS Lecture Notes Series 171, Cambridge University Press, 1993.

Preliminary meeting
A preliminary discussion (Vorbesprechung) for the assignment of the topics (Themenvergabe) will take place on Thursday 16th of April from 11.45 to 13.15 in Room F426.

Contacts
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