Einladung zum

Mathematischen Kolloquium

Am Donnerstag, 15. September 2011

spricht

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über

An algebraic approach to tropical mathematics

The rapidly developing topic called “tropical mathematics”, has been based on two main approaches. Primarily, tropical curves have been defined as domains of non-differentiability of polynomials over the max-plus algebra, and also tropical mathematics has been viewed in terms of valuation theory applied to curves over Puiseux series. Unfortunately, semirings such as the max-plus algebra possess a limited algebraic structure theory, and also do not reflect these valuation-theoretic properties, thereby forcing researchers to turn to combinatoric arguments.

The object of this talk is to present an algebraic structure more compatible with algebraic structure theory and valuation theory than the max-plus algebra. We present a “layered” structure, “sorted” by a semiring which permits varying ghost layers, and indicate how it permits a direct algebraic description of tropical varieties. We also discuss factorization of polynomials, properties of the resultant, and multiple roots of polynomials. Explicit examples and comparisons are given for various “sorting” semirings such as the natural numbers and the positive rational numbers, and we consider how this theory relates to some recent developments in the tropical literature such as “characteristic 1”, “analytification”, and “hyperfields”.

Der Vortrag findet statt um 15 Uhr c.t. im Raum 5210, 5. Ebene des Mehrzweckhochhauses (MZH) der Universität Bremen, Bibliothekstraße. Zuvor gibt es Kaffee/Tee und Gebäck im Raum 7140.

Alle Interessierten sind herzlich eingeladen.
R.-E. Hoffmann als Kolloquiumsbeauftragter.