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Barycentric algebras and barycentric coordinates

**The Department of Computer Science
at Paris-Lodron-University of Salzburg**

invites you

to the following MARS talk

of

Anna Zamojska-Dzienio

Warsaw University of Technology

Thursday, June 20, 2024 at 1pm

in room T03

Jakob-Haringer-Straße 2

Assoz. Prof. Dr. Ana Sokolova

Host

Real convex sets can be presented algebraically with binary operations given by weighted means, the weights taken from the (open) unit interval in the real numbers. The class of convex sets is defined logically by certain implications, and generates the equationally-defined class of barycentric algebras.

Barycentric coordinates provide solutions to the problem of expressing an element of a compact convex set as a convex combination of a finite number of extreme points of the set. They have been studied widely within the geometric literature, typically in response to the demands of numerical analysis and computer graphics. In this talk we bring an algebraic perspective to the problem, based on barycentric algebras. We present some recent results obtained together with A. Romanowska (Warsaw University of Technology) and J.D.H Smith (Iowa State University).

Short CV

Anna Zamojska-Dzienio is an associate professor at Faculty of Mathematics and Information Science at Warsaw University of Technology. Her scientific interests include universal algebra and lattice theory, with special focus on their applications in other areas of mathematics, for example geometry, knot theory, set-theoretical solutions to the Yang-Baxter equation, modeling of complex systems.