



Mathematisches Kolloquium

A discrete analogue of the Dirac-Kähler equation using a geometric discretisation scheme

In this talk, we present a discrete analogue of the Dirac-Kähler equation in which some key geometric aspects of the continuum counterpart are captured. We pay special attention to the description of some methods of constructing intrinsically defined discrete models for special classes of differential operators. A geometric discretisation scheme based on the use of the differential forms language is proposed. By this approach, the algebraic relations amongst the exterior product, the Hodge star operator, the differential and co-differential that hold in the smooth setting also hold in the discrete case. The discretisation scheme can be used to construct a discrete analogue of the Dirac equation in the Hestenes form. The relation between discrete models of the Dirac-Kähler and the Hestenes equations is discussed. A discrete version of the plane wave solutions to the discrete Hestenes equation is established.

Dr. Volodymyr Sushch

Technische Universität Koszalin, Polen

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Um 16.30 Uhr werden im selben Raum Kaffee und Tee serviert.