Hans Havlicek, Vienna University of Technology

A distance space on Cayley's ruled surface

Cayley's ruled cubic surface in the real projective 3-space has an interesting "inner geometry". In particular, there exists a distance function which can be derived via the theory of Lie groups [2]. However, the distance from A to B is in general not the distance from B to A. Using a completely different, purely geometrical approach , we generalize the distance function from [2] to the case of an arbitrary ground field K with more than three elements. Our distance function δ fits into the concepts developed in [1]. It will be established that δ is a defining function for the group of automorphic projective collineations of the Cayley surface.

This is joint work with Johannes Gmainer [3].

References

[1] W. Benz: *Geometrische Transformationen*, BI-Wissenschaftsverlag, Mannheim, 1992.

[2] H. Brauner: Geometrie auf der Cayleyschen Fläche, *Sb. österr. Akad. Wiss., Abt. II*, **173** (1964), 93–128.

[3] J. Gmainer, H. Havlicek: Isometries and Collineations of the Cayley Surface, *Innov. Incidence Geom.*, in print.