PROJECTIVE GEOMETRY WITH PROJECTIVE ALGEBRA

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Many analytic descriptions for projective geometry are not representing the *complete* wealth of projective geometry such as it is know from *synthetic* projective geometry. In most of the analytic descriptions the basic elements are reduced to points or to points and hyperplanes, but do not, for example, include the lines and linear complexes of space (in the form of basic elements). A further failure often is that the principle of duality is not reflected by the analytic description.

In order to overcome these boundaries, the 2^n-dimensional projective algebra $\Lambda_n(+, \cdot, \wedge, \vee)$ was developed.

This talk will provide a system of axioms for projective geometry $\mathscr{P}_n$ in terms of projective algebra Λ_n. Concepts of projective geometry such as the principle of duality, primitive geometric forms, the cross ratio of four basic elements and projective transformations will be determined in terms of projective algebra.

The above mentioned system of axioms for projective geometry will be compared to other approaches to projective geometry. [1, 2, 3, 4, 5]

REFERENCES

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