FACOLTÀ DI SCIENZE MATEMATICHE, FISICHE E NATURALI
DIPARTIMENTO DI MATEMATICA E FISICA "NICCOLÒ TARTAGLIA"
MATHEX

Regular parallelisms in terms of the Klein quadric

Introduce:
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Over any fi K, there is a bijection between regular spreads of the projective space PG(3, K) and external lines to the Klein quadric in PG(5, K). Under this bijection, the set of parallel classes of any regular parallelism of PG(3, K) corresponds to a set of lines, say *H*, that determines a *hyperflock* of the Klein quadric, that is, a partition of the Klein quadric by elliptic subquadrics. Such an *H* is therefore called a *hyperflock determining line set* or an "hfd line set" for short. We report on some of the known examples of hfd line sets and their corresponding parallelisms.
An hfd line set is said to be *pencilled* if it is composed of pencils of lines. We present a construction of pencilled hfd line sets and outline the rather intricate proof that this construction determines all hfd line sets.
Among the regular parallelisms of PG(3, K) that correspond to pencilled hfd line sets are all its Clifford parallelisms. This observation allows us to derive necessary and sufficient algebraic conditions on the ground fi K that guarantees the existence of pencilled hfd line sets.

Seminario

Venerdì 13 aprile 2018
Sala Riunioni, ore 11.00
Via dei Musei 41 - Brescia

UNIVERSITÀ CATTOLICA
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