

Manifold-based Proving Methods in Projective Geometry

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Abstract. This article compares different proving methods for projective incidence theorems. In particular, a technique using quadrilateral tilings recently introduced by Sergey Fomin and Pavlo Pylyavskyy is shown to be at most as strong as proofs using bi-quadratic final polynomials and thus, also proofs using Ceva-Menelaus-tilings. Furthermore, the equivalence between quadrilateral-tiling-proofs and proofs using exclusively Menelaus configurations is shown as well as additional results for Ceva-Menelaus-proofs.

Keywords: Binomial Proofs · Tilings · Projective incidence theorems