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An infinite class of movable 5-configurations

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Abstract: A geometric 5-configuration is a collection of points and straight lines, typically in the Euclidean plane, in which every point has 5 lines passing through it and every line has 5 points lying on it; that is, it is an (n_5) configuration for some number n of points and lines. Using reduced Levi graphs and two elementary geometric lemmas, we develop a construction that produces infinitely many new 5-configurations which are movable; in particular, we produce infinitely many 5-configurations with one continuous degree of freedom, and we produce 5-configurations with $k - 2$ continuous degrees of freedom for all odd $k > 2$.

Keywords: Configurations, incidence geometry.

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Neskončen razred gibljivih 5-konfiguracij

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Povzetek: Geometrijska 5-konfiguracija je sestav točk in premic v evklidski ravnini, v kateri gre skozi vsako točko 5 premic, na vsaki premici pa leži 5 točk; to je torej (n_5) konfiguracija za neko število n točk in premic. Z uporabo reduciranih Levijevih grafov in dveh elementarnih geometrijskih lem razvijemo konstrukcijo, ki nam da neskončno mnogo novih in gibljivih 5-konfiguracij; na ta način dobimo neskončno mnogo 5-konfiguracij z eno zvezno prostostno stopnjo, pa tudi 5-konfiguracije s $k - 2$ zveznimi prostostnimi stopnjami za vse lihe $k > 2$.

Ključne besede: Konfiguracije, incidenčna geometrija.

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