COMMENTS ON FLEXIBLE KOKOTSAKIS MESHES[1]

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A Kokotsakis mesh is a polyhedral structure consisting of an n-sided central polygon p_0 surrounded by a belt of quadrangles or triangles such that each side a_i of p_0 is shared by an adjacent polygon p_i and the relative motion between cyclically consecutive neighbor polygons is a spherical coupler motion. Hence, each vertex of p_0 is the meeting point of four faces. In the case $n = 3$ the mesh is part of an octahedron.

These structures with rigid faces and variable dihedral angles were first studied in the thirties of the last century. However, in the last years there was a renaissance: The question under which conditions such meshes are flexible (infinitesimally or continuously) gained high actuality in the field of discrete differential geometry. The goal of this presentation is to extend the list of wellknown continuously flexible examples (Bricard, Graf, Sauer, Kokotsakis) by a new family and to study their geometric properties.

While for arbitrary n the classification of continously flexible Kokotsakis meshes is an open problem, we know since R. Bricard the solution for $n = 3$. For $n = 4$ the problem is closely related to the question under which conditions the composition of two spherical four-bar mechanisms with aligned frame links is reducible.

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