

**Grzegorz Dzierzanowski, Krzysztof Hetmanski**, *Optimal design of archgrids: the second-order cone programming perspective*

, Archives of Civil Engineering, 2021, 67(4), pp. 469-486,

[on-line](#)>>

*Abstract*

This paper regards the minimum weight problem of spatial systems, known in the literature as Rozvany–Prager archgrids. Their architectural role is to transmit a load of fixed intensity to the line of supports located at the boundary of a given plane domain. The system consists of arches spaced apart from one another, hence the mechanics of such a system is that of a gridwork shell and not a shell continuum.

Mathematically, description of an archgrid falls into the class of Michell frames. (...)