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Abstracts of Papers

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Parametric Study of Proportions of Serbian Medieval Structures

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Abstract

Following the streamline of parametric research related to 3D modeling of world cultural heritage, this paper presents an elaboration of 2D/3D proportional analyses of Serbian medieval churches aided by parametric tools. Here, proportions of Serbian sacred structures are introduced in the new context of 3D parametric modeling. Each geometric element of a sacral building (e.g. vaults, dome, pendentives, arches, etc.) can be interpreted by its proportions and determined by parameters, and such incorporated in the adequate 3D model, according to plan and section patterns of a church. Eventually, a variation of parameters, depending on a pattern, results in a transformation of object's 3D model. The focus of our research is on proportional analysis of several representative Serbian medieval churches, built between the 12th and 14th centuries, in the context of 2D/3D parametric modeling. Since the primary goal of the sacred space is related to its inner concept, the research will elaborate geometry of the church interior. We test the three main structural concepts in medieval Serbian architecture - Ras, Moravian and Byzantine by varying their shapes and complexity. 3D modeling elements and masses grouped as families were created for importing into various structural concepts. Hence an innovative approach lightens "old" 2D proportional canons of exquisite Serbian medieval monuments, by utilizing modern digital tools, in a 3D graphics environment.

Key words: parametric modeling, Serbian medieval churches, proportions, plan/section patterns.