Contribution ID: **171**　　　　　　　　　　　　　　　　　　Type: **not specified**

Contemporary Problems of Numerical Modeling of Unique Structures, Buildings and Complexes

Monday, 3 July 2017 13:30 (30 minutes)

The following contemporary problems of mathematical modelling of unique structures, buildings and complexes are under consideration: modeling of interaction of buildings and structures with a foundation with allowance for real properties, stage-by-stage construction and actual operation history; structural analysis with allowance for physical, geometrical and other nonlinearities; structural analysis with allowance for structural and technological specificity of buildings and facilities; numerical modeling of wind flows and loads, experimental validations of wind load analysis; seismic analysis; progressive collapse analysis of buildings and facilities with allowance for real dynamic highly nonlinear effects of elastoviscoplasticity and large displacements; development and refinement of methods and algorithms for solution of large-scale computational problems; development of calibratable predictive mathematical and computer models as part of structural health monitoring systems at the stages of erection and operation of buildings and facilities; application of algorithms of aerodynamics for modelling of snow sedimentations, explosion loads and distribution of hazardous emissions; numerical modeling of three-dimensional nonstationary roblems of fire resistance; solution of coupled problems of aerohydroelasticity. Development of proprietary software and verification of software in the Russian Academy of Architecture and Building Sciences are considered as well.

Short biography note

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Session Classification: Mathematical methods and application software for modeling complex systems and engineering (I)