

Z. Kacprzyk, *Third formulation of the space-time finite element method*, RSP 2020, IOP Conference Series: Materials Science and Engineering, Volume 1015, XXIX R-P-S Seminar 2020 November 2020, Wroclaw, Poland, DOI: 10.1088/1757-899x/1015/1/012005
[on-line>>](#)

Abstract

The paper explains differences existing between the space-time finite elements, which fundamentals were presented by the Kączkowski in 1975 and 1976, and its modification. The replacement of load with concentrated forces and moments (which are to satisfy equilibrium conditions at nodes) was given up, namely in the latter one; instead, a requirement was made that functions approximating the solution would satisfy differential equation in inter-node areas in a specified integral way. This leads to a system of algebraic equations, in which kinematic parameters existing in the solution approximating functions are the unknowns. Displacements and their derivatives (of any order) at nodes are those parameters.