Method of Vortex Structure Identification in Axisymmetric Flow Field

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The article deals with the analysis of axisymmetric flow field from the point of view of vortex identification. The vortex is identified by using residual vorticity defined in the work [1]. The identification is based on the so-called triple decomposition of motion [1]. The idea of vortex identification based on the residual vorticity which is easily applicable in the case of two-dimensional flow field is extended to the case of axisymmetric flow. The analyses is based on the decomposition of velocity gradient tensor and on the search of so-called basic reference frame which allows to examine clearly the kinematics of the flow field.

Keywords: Vortex Identification, Residual Vorticity, Triple Decomposition, Axisymmetric Flow

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References