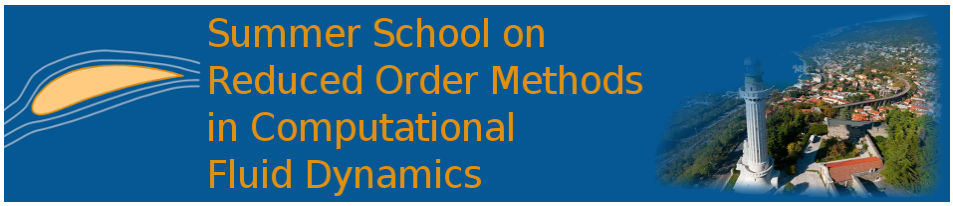

Contribution ID: **46** Type: **Poster**

ANALYSIS AXIAL SYMMETRIC OF COMPRESSIBLE FLOW FOR HYPERSONIC ENGINE

In the present study, the analysis of two-dimensional flow dynamic was performed on a uniform stream across of an asymmetrical axial geometry in conditions of compressible flow over an expanding area. The mathematic model used was the boundary layer theory is used to simplify the Navier Stokes equations, presenting small perturbations in the results. After the numerical integration, the distribution of velocities, temperature and pressures are plotted.
Setting the parameters of the simulation, a convergent-divergent geometry was established with a mesh structured to the domain for the solution of differential equations of conservation, discretized by finite volumes. The ideal gas equation was coupled to solve the equation system, associating the effects of the compressibility with the temperature gradients with the high velocities of the exhaust gases.
The conditions and hypotheses established allowed to counteract the behaviour of the gases product of the LOX / LH2 combustion in expansion on the engine nozzle.

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Session Classification: Poster blitz