It is also seen that the transverse velocity component is considerably smaller than the axial one with the latter exceeding the local sound velocity.

4 CONCLUDING REMARKS

The possibility of arranging a cyclic operation in the detonation mode of the CDC with a wide annular gap (23 mm) comparable to the height of the blades of the last stage GTE compressor and with separate delivery of fuel and oxidizer has been demonstrated computationally based on 3D URANS simulations coupled with the Particle method modeling micromixing and turbulence–chemistry interaction. A 15 percent gain in total pressure has been obtained in the CDC. A proposed design of the upstream isolator was shown to provide almost complete damping of pressure disturbances propagating upstream from the CDC towards the compressor.

Further efforts will be directed towards transition from hydrogen to liquid hydrocarbon fuel and the design of a downstream isolator protecting the turbine from pressure disturbances generated in the CDC.

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