

UNIFORM AND EQUIDISTANT WAYS OF STRUCTURED COMPUTATION GRID CREATION FOR CFD PROBLEMS

©2008 A. N. Yefimow, V. N. Matveev

Samara State Aerospace University

Two ways of structured plain algebraic computation grid for tetragonal regions with curvilinear sides are introduced. Uniform way can be used in tetragonal regions with arbitrary side shape. Equidistant way is used in regions where two opposite sides are equidistant.

Gas dynamics, research, inaccuracy, computational grid, meshing, modeling

Efimov Alexei Nikolaevich, postgraduate of Samara State Aerospace University “Theory of Aircraft Engines” department. E-mail: tdla@ssau.ru. Area of research: turbomachines, gas dynamics, cooling systems.

Matveev Valeriy Nikolaevich, Doctor of Engineering Science, professor, head of SSAU “Theory of Aircraft Engines” department. E-mail: tdla@ssau.ru. Area of research: operation processes in microturbomachines.

References

1. Sabonadier J-C., Kulon J-L. Finite Elements Method and CAD. Transl. from French. Moscow: “Mir”, 1989.

2. S.Patankar. Numerical solution methods of heat exchange problems and fluid dynamics. Moscow: “Energoatomizdat, 1984.

3. Scherbak M. Algorithm of 2D FE grid automatic generation. [<http://home.onego.ru/~scherbak/>]. 31.05.2005.

4. Schtraube A.V. Effective solution of convective equation by modern computing: learners guide for “Problem solving using computer”. Perm: Perm’s University, 2003.

5. Derevyanko A.V., Zhuravlev V.A., Zikheev V.V. Aircraft Turbines Design Basis. Moscow: “Mashinostroenie”, 1988.

6. ANSYS Modelling and Meshing Guide. [http://strelka.ftf2.tsu.ru/~sid/Linux/Ansys_doc/_____/Ansys_html/guide_55/g-mod/GMODToc.htm]. 20.06.2005.

7. Bogkaev Y.P. Calculus Mathematics and Programming. Tutorial. Moscow: “Vysshaya Shkola”, 1990.

8. EZ-Turbo. [<http://www.cd-adapco.com/news/16/es-turbo.htm>] 20.06.2005.