



DGLR International Symposium
“To Moon and beyond”
15-17 September 2008, Park Hotel Bremen, Germany

GUIDELINES FOR THE PREPARATION OF CAMERA-READY MANUSCRIPTS FOR PROCEEDINGS

1. **Typing area.** The correct typing area is **117 mm x 189 mm**. Text system printout must adhere to this. Make sure the typing area is completely filled. Set the margins so that they precisely match the outline and type right from the top to the bottom line. Figures and tables must be completely within the typing area.
2. **Type.** The **typeface is 10pt**, except for headings, figure legends, and table captions. If possible, use `Times Roman`. As a rule of thumb, the smallest (capital) letters used should not be smaller than 2 mm.
3. **Line spacing** should be 12 pt = 4.1 mm. Start on top of the page and leave sufficient space for the title to stand out clearly. Paper **title** (14pt, bold type) and **headings** (12pt, bold type) must be centred, **sub-headings** (10pt, bold type) be placed to the left. Place **name** and complete **address** centred below title. Start with a **10 line summary**. However, do not use a new page for the beginning of subdivisions of chapters. Leave three lines blank above and two below headings of such subdivisions. Make sure headings of equal importance are in the same form.
4. **Footnotes** should be avoided. In exceptional cases, place them at the foot of the page, separated from the text by a line 4 cm long, and type them in small typeface (9 pt) with 11 pt space between, but make sure that they are not placed outside of the frame.
5. **Symbols.** Anything which cannot be typed may be entered by hand in ink. A fine-tipped rapidograph is suitable for this purpose; a good black ball-point will do, but a pencil will not. Do not draw straight lines by hand without a ruler, not even in fractions. Carelessly written formulae may lead to the rejection of the manuscript.
6. **Equation Numbers** are to be placed to the right in parentheses `()`. Use punctuation marks in equations, too.
7. **Emphasis.** Words to be emphasised are to be typed in *italics*.
8. **Literature References.** These should be placed at the end of the paper. Type them with 9 pt typeface in 11 pt line spacing and start each reference on a new line. In the text cite them in brackets `[]`.
9. **Figures.** **Mark spaces in the text to fit any figures to be inserted (centred) and add** two lines of spacing above and below them.
10. Type **legends of figures** in small typeface (9 pt) with 11 pt spacing and place them centred on the page **below** the figures. Leave appropriate space before continuing the



running text. Make sure that they are not placed outside of the frame. Use for the figures either original line drawings or positive copies. Check that lines and points on copies are uniformly black. Insert or paste them into the spaces left for this purpose. When positive copies are used, please attach the originals. Letters or numerals on figures should be about 3 mm high, but in any case not smaller than the characters on the text system.

11. **Tables.** Frame tables **completely**. Put the table caption centred single spaced **above** the table. Place them into the text like the figures (item 9), i.e. in 9 pt with 11 pt spacing. Make sure that they are not placed outside of the frame.
12. Obtain the **copyright** for any figure or table, which you reproduce from other publications or reports, including your own. Make the proper references and acknowledgements. **With the delivery of your manuscript you declare implicitly, that potential copyright matters have been settled.**
13. **Pagination.** Number pages in the upper right hand corner outside the typing area in light blue or green crayon only. The final pagination will be done by the editor of your volume.
14. **Corrections.** When corrections have to be made without using a text system, cut the new text to fit and paste it over the old. White correction fluid may also be used. Never make corrections or insertions in the text by hand. If the typescript has to be marked for any reason, e.g. for temporary page numbers or to mark corrections for the typist, this can be done very faintly with blue or green crayon but no other colour, and outside the typing area.
15. **Number of pages.** Do not use more pages for your paper than have been allotted to you by the editor. **10 pages for the DGLR International Symposium “To Moon and beyond”.**



Adaptively Refined Cartesian Grid Generation and Euler Flow Solutions for Arbitrary Geometries

--- Title, 14pt, bold type, centred

F. DEISTER¹, D. ROCHER², E.H. HIRSCHL¹ and F. MONNOYER²
¹ Universität Stuttgart, I.A.G., Pfaffenwaldring 21, D-70550 Stuttgart, Germany
² Université de Valenciennes, L.M.E., Le Mon Houy – B.P. 311, F-59304 Valenciennes Cedex, France

--- Author(s), centred

--- Full postal address(es), centred

Summary

--- Heading, 12pt, bold type, centred

An automatic Cartesian grid generator is presented together with Euler solutions of flows around complicated geometries. The computational grid is generated based on an octree-data structure. Solid bodies merely blank out areas of the background Cartesian grid. The part of the surface-intersecting cells is cut off, which lies inside the body. As a result arbitrarily shaped cut-cells arise around the geometry. ...

--- Summary, 10 lines

2 Three-Dimensional Cartesian Grid Generation

--- Heading, 12pt, bold type, centred

The surface of the geometry is described in form of a surface triangulation, which is adapted to the local curvature radius. The triangulation requires the attribute of watertightness. Prior to the grid generation, the body is translated, rotated and

2.1 Spatial Decomposition of the Flow Domain

--- Sub-Heading, 10pt, bold type, placed to the left

The flow domain is represented in a Cartesian space, therefore the physical and the computational space are identical. At the beginning of the domain decomposition it consists of only one huge initial hexahedral cell. Now the flow domain is divided into smaller sub-domains using the octree-structure, [14] and [15]. The cells of the octree are identical to the Cartesian cells. ...

--- Citation of references

High values of entropy tend to indicate grid areas that are simply under resolved. For each cell, weighted forms of the divergence, τ_d , and curl, τ_c , of the velocity and the strength of the numeric entropy, τ_e , are computed:

--- Equations with punctuation marks and equation number

$$\tau_{d_i} = |\nabla \cdot \vec{v}_i| L_i^{3/2}, \quad \tau_{c_i} = |\nabla \times \vec{v}_i| L_i^{3/2}, \quad \tau_{e_i} = \left| \nabla_{p_i} - a_i^2 \nabla_{p_i} \right| L_i^{3/2}.$$

(1) (1)

--- Citation of equation

L_i is the length-scale for each cell, equation (1). The length-scale weight is used to find weaker features, which are in a coarser area of the flow. This allows the weaker features to be refined when the stronger features have been resolved, Figure 4.

--- Citation of figure



Acknowledgement(s)

The authors would like to thank the CNRS and the DFG for grants under which the project "Self-Organizing Cartesian Grid-Generation System" is supported, embedded in the French-German project "Numerische Strömungssimulation – Simulation Numérique d'Ecoulements".

--- Acknowledgement(s), 12pt bold type, centred

References

- [1] E.H. Hirschel and W. Schwarz. "Mesh Generation for Aerospace CFD Applications". In Surveys on Mathematics for Industry, Volume 4, 1995, pp. 249-265.
- [2] S.L. Jr. Karman. "Unstructured Cartesian/Prismatic Grid Generation for Complex Geometries". In Surface Modeling Grid Generation and Related Issues in Computational Fluid Dynamics (CFD Solutions. NASA CP-3291, 1995, pp. 251-270.

--- References, 12pt, bold type, centred

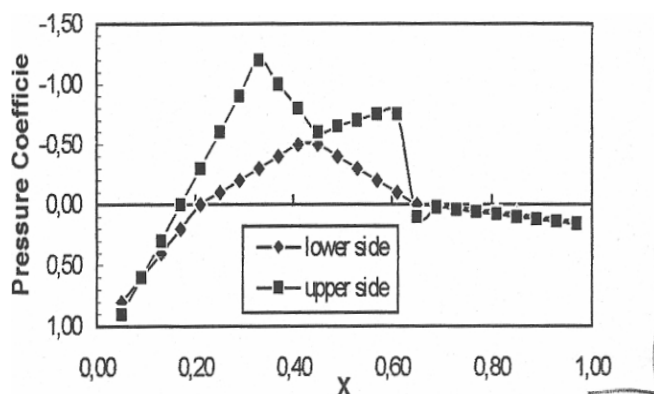


Figure 15 Pressure coefficients of airfoil ($M = 0.84$, $\alpha = 3.06^\circ$)

--- Figure, centred, legibility of numbers and symbols!

--- Figure number (bold type), figure legend, all 9pt, centred

Table 1 Number of flow-cells and cut-cells for each multi-grid level

Multigrid level	Number of flow-cells / Number of cut-cells		
	Initial grid	Adapted grid #1	Adapted grid #2
L_5	20745 / 7483	41234 / 1517	112294 / 22444
L_4	928 / 384	1308 / 684	828 / 508
L_3	3332 / 2320	12001 / 7686	6885 / 4689
L_2	10026 / 5122	17852 / 5312	56237 / 18359
L_1	4592 / 1328	8888 / 1328	40220 / 5312
L_0	1760 / 344	3632 / 344	15896 / 1328

--- Table number (bold type), table legend, all 9pt, centred

--- Table with complete frame, centred