

LETTER TO THE EDITOR

Godunov's Method for Gas-Dynamics: Current Applications and Future Developments

Ann Arbor, Michigan, May 1–2, 1997

It gives me great pleasure to announce that an international symposium on Godunov-type methods—used worldwide for modeling continuum processes dominated by wave propagation—will be held on May 1–2, 1997, at the University of Michigan, Ann Arbor, Michigan. The title of the symposium is “Godunov’s Method for Gas-Dynamics: Current Applications and Future Developments.” It is dedicated to the Russian mathematician S. K. Godunov (Institute of Mathematics, Russian Academy of Sciences, Novosibirsk, Russia), who will also receive an honorary degree from the University of Michigan on May 3.

Professor Godunov’s work of the 1950s and 1960s in the field of hyperbolic partial differential equations and their numerical approximation has had a profound effect on computational fluid dynamics. Many of today’s state-of-the-art codes for simulating compressible flow, used in fields as diverse as civil aeronautics, nuclear-reactor safety, mesoscale meteorology, planetary space physics, and astrophysics, have their roots in a single paper by Godunov published in 1959. In this paper the use of the solution to Riemann’s initial-value problem appears as a building block for a finite-volume method for compressible flow. In extensions by later authors, this concept is combined with that of nonoscillatory initial-value reconstruction, in order to achieve higher accuracy.

It seems fitting to announce this symposium in the *Journal of Computational Physics*, since no single journal has done so much for the advancement of Godunov-type methods as JCP. If we define Godunov-type methods as nonoscillatory finite-volume schemes that incorporate the solution (exact or approximate) to Riemann’s initial-value problem, or a generalization of it, we find that almost all key articles on the development of such methods appeared in this journal. Among the authors of these papers several have served or are serving on the journal’s editorial board.

The purpose of the conference is to give an overview of the current state of development and use of Godunov-type methods in science and engineering and to offer a perspective of their future development and use. This will be achieved through three sessions of invited lectures, post-session panel discussions on “Current and Future Directions in Computational Science,” and a poster display. The symposium will freely cross interdisciplinary boundaries by demonstrating the similarity in numerical treatment of a wide range of continuum-modeling problems. Loose-leaf proceedings consisting of extended abstracts with (color) figures will be distributed.

The symposium will provide a podium to senior and junior researchers. To encourage participation by graduate research students, a number of travel grants will be made available. Financial support by AFOSR and NSF is pending.

For further information please contact the symposium secretary:

Godunov Symposium
Attn: Debbie Laird, Secretary
Department of Aerospace Engineering
The University of Michigan
Ann Arbor, MI 48109-2118
Telephone: (313) 764-7200
Fax: (313) 763-0578
E-mail: dcak@engin.umich.edu

For up-to-date symposium information, please visit the website of the Keck CFD Laboratory in the Department of Aerospace Engineering (<http://hpcc.engin.umich.edu/CFD/>).

Bram van Leer
Chair, Godunov Symposium
Department of Aerospace Engineering
The University of Michigan
Ann Arbor, Michigan 48109-2118