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POLYTECHNIC INST OF NEW YORK BROOKLYN AERODYNAMICS LABS
NUMERICAL FLOWS-TRANSIENT/VISCOUS FLOWS WITH SHOCKS.(U)
MAR 79 G MORETTI

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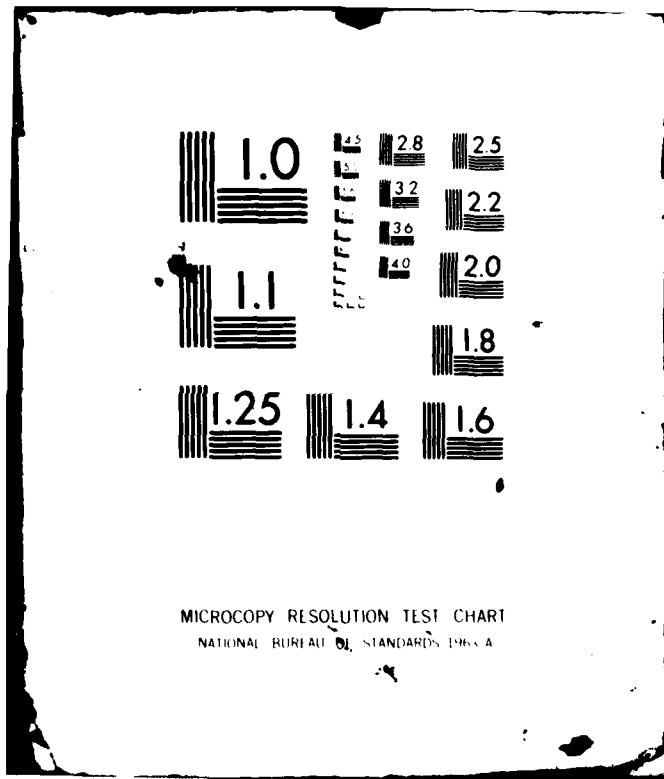
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NUMERICAL FLOWS-TRANSIENT/VISCOUS FLOWS WITH SHOCKS.

by Gino Moretti

Polytechnic Institute of New York, Brooklyn
Aerodynamics Laboratories

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JUN 3 1981
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FINAL REPORT, AS OF MARCH 1979

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Office of Naval Research

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Contract NO0014-75-C-0511 Project NR-061-135

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We have continued the theoretical and numerical research which had been carried on in previous years and whose projected continuation was outlined in our last proposal. Some of the goals were reached during the past year. In particular we were able to produce results of calculations of two dimensional unsteady viscous flow ^{were produced} by solving the Navier-Stokes equations on a very course grid on which accumulation of lines near the rigid walls was obtained by powerful analytic stretchings of coordinates. ~~Our most~~ ^{were} important results ~~have been~~ published in the POLY Report M/AE 78-22. ^{that} This contains the analysis of the new integration scheme for inviscid flow only. Further results have been mentioned in the AIAA paper 79-1510, presented as an Invited Paper at the Williamsburg meeting of the AIAA in 1979. Finally, POLY Report M/AE 79-40 contains the full extension of the technique to viscous flow and flows with imbedded shocks ^{are also reported}. Such techniques are, in our opinion, the most advanced techniques for the handling of transonic flow patterns. In the reports mentioned above, particularly in the last ^{all} equations are analyzed and their discretization is discussed. Examples of applications of such techniques have been given in the same reports but more appli-

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cations have been computed and are currently still under analysis; therefore, presentation of data has been delayed until we have completed all our numerical experiments.

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