

Amiram HARTEN

LIST OF PUBLICATIONS

ARTICLES

1. S. Cuperman and A. Harten
The Solution of One-Fluid Equations with Modified Thermal Conductivity for the Solar Wind
Cosmic-Electrodynamics I, 205-217 (1970).
2. S. Cuperman and A. Harten
Noncollisional Coupling Between the Electron and the Proton Components in the Two-Fluid Model of the Solar Wind
The Astrophysical Journal 162, 315-326 (1970).
3. S. Cuperman, A. Harten and M. Lecar
A Phase-Space Boundary Integration of the Vlasov Equation and Comparison with Sheet-Model Calculations for Collisionless One- Dimensional Stellar Systems
Astrophysics and Space Science 13, 411-420 (1971); also in Proceedings of the I.A.U. Colloquium No. 10, Cambridge, England, Edited by M. Lecar (1970).
4. S. Cuperman A. Harten and M. Lecar
The Collective Relaxation of Two-Phase-Space Density Collisionless One-Dimensional Selfgravitating Systems
Astrophysics and Space Science 13, 425-445 (1971); also in Proceedings of the I.A.U. Colloquium No. 10, Cambridge, England, Edited by M. Lecar (1970).
5. S. Cuperman and A. Harten
The Electron Temperature in the Two Components Solar Wind
The Astrophysical Journal 163, 383-392 (1971).
6. S. Cuperman and A. Harten
The Radial Electric Field in the Solar Wind
The Astrophysical Journal 169, 165-169 (1971).
7. S. Cuperman and A. Harten
Some Physical Implications of Recent Solar Wind Measurements
Solar Wind, Edited by C. Sonett et al., 244-247 (1972).
8. S. Cuperman, A. Harten and M. Dryer
Characteristics of the Quiet Solar Wind Beyond the Earth's Orbit
The Astrophysical Journal 177, 555-566 (1972).
9. S. Cuperman and A. Harten
The Evolution of a Multi-Phase-Space Density Collisionless One-Dimensional Stellar System
Astron. and Astrophys. 16, 13-20 (1972).

10. S. Cuperman and A. Harten
On the Stability of Strongly Non-Homogeneous Self-Gravitating Equilibria
Astrophysics and Space Science 18, 207-222 (1972).
11. A. Harten and G. Zwas
Switched Numerical Shuman Filters for Shock Calculations
J. Eng. Math. 6, No. 2, 207-216 (1972).
12. A. Harten and G. Zwas
Self Adjusting Hybrid Schemes for Shock Computations
J. Comp. Physics 9, No. 3, 568-583 (1972).
13. S. Cuperman and A. Harten
Solution of One-Fluid Model Equations with Short Range Retarding Magnetic Forces
for the Quiet Solar Wind
Astrophysics and Space Sciences, Vol. 27, No. 2, 383-387 (1974); also available in
extended form as Tel-Aviv University Internal Report.
14. S. Cuperman and A. Harten
A Numerical Code for Multiple “Water Bag” Gravitational Systems
Computer Physics Communications, Vol. 8, 307-319 (1974).
15. A. Harten, J.M. Hyman and P.D. Lax, with Appendix by B. Kayfitz
On Finite Difference Approximations and Entropy Conditions for Shocks
Comm. Pure Appl. Math., Vol. 29, 297-322 (1976); also an NYU Report, IMM 411,
000-3077-107 (January 1976).
16. A. Harten
The Artificial Compression Method for Computation of Shocks and Contact Disconti-
nuities: I. Single Conservation Laws
Comm. Pure Appl. Math., Vol. 30, 611-638 (1977); also ICASE Report No. 77-2
(February 1977).
17. A. Harten and S. Efrony
A Partition Technique for the Solution of Potential Flow Problems by Integral Equation
Methods
J. Comp. Phys., Vol. 27, 71-87 (1978).
18. A. Harten
The Artificial Compression Method for Computation of Shocks and Contact Disconti-
nuities: III. Self-Adjusting Hybrid Schemes
Math. of Comp., Vol. 32, 363-389 (1978); also NYU Report IMM-415 (March 1977).
19. A. Harten and H. Tal-Ezer
On a Fourth Order Accurate Implicit Finite Difference Scheme for Hyperbolic Conser-
vation Laws: I. Nonstiff Strongly Dynamic Problems
Math. of Comp., Vol 36, 353-373 (1981); also ICASE Report No. 79-1 (January 1979).

20. A. Harten and H. Tal-Ezer
On a Fourth Order Accurate Implicit Finite Difference Scheme for Hyperbolic Conservation Laws: II. Five-Point Schemes
J. Comp. Phys., Vol. 41, No. 2, 329-356 (1981); also ICASE Report No. 79-10 (June 1979).
21. A. Harten and P.D. Lax
A Random Choice Finite-Difference Scheme for Hyperbolic Conservation Laws
SIAM J. Numer. Anal., Vol. 18, 289-315 (1981); also NYU Report No. DOB/ER/03077-167 (May 1980).
22. A. Harten
On the Symmetric Form of Systems of Conservation Laws with Entropy
J. Comp. Phys., Vol. 49, 151-164 (1983); also ICASE Report No. 81-34 (October 1981).
23. A. Harten and J.M. Hyman
Self-Adjusting Grid methods for One-Dimensional Hyperbolic Conservation Laws
J. Comp. Phys., Vol. 50, No. 2, 235-269 (1983); also Los Alamos Report No. LA-9105 (October 1981).
24. A. Harten
On High Resolution Schemes for Hyperbolic Conservation Laws
J. Comp. Phys., Vol. 49, No. 3, 357-393 (1983); also NYU Report (March 1982).
25. A. Harten, P. Lax and B. Van Leer
On Upstream Differencing and Gudunov-Type Schemes for Hyperbolic Conservation Laws
SIAM Review, Vol. 25, 35-61 (1983); also ICASE Report No. 82-5 (March 1982).
26. A. Harten (with Appendix by Peter D. Lax)
On a Class of High Resolution Total-Variation-Stable Finite- Difference Schemes
SIAM J. Num. Anal., Vol. 21, 1-23 (1984); also NYU Report (October 1982).
27. H.O. Yee, R.F. Warming and A. Harten
Implicit Total Variation Diminishing (TVD) Schemes for Steady- State Calculations
J. of Comp. Phys., Vol. 57, No. 3, 327-360 (1985); also AIAA Paper No. 83-1902; also NASA Technical Memorandum 84342 (March 1983) (Refereed).
28. A. Harten
On a Large Time-Step High Resolution Scheme
Math. of Comp. 46, 379-399 (1986); also ICASE Report No. 82-34 (November 1982).
29. H.C. Yee and A. Harten
Implicit TVD Schemes for Hyperbolic Conservation Laws in Curvilinear Coordinates
AIAA Journal 25, 266-274 (1987); also Proceedings of the AIAA 7th Computational Fluid Dynamics Conference, Cinn., Ohio, U.S.A. (1985) AIAA-85-1513.

30. A. Harten and S. Osher
Uniformly High-Order Accurate Non-Oscillatory Schemes I.
SIAM J. Num. Anal. 24, 279-309 (1987); also MRC Technical Summary Report #2823, May 1985.
31. A. Harten, S. Osher, B. Engquist, S. Chakravarthy
Some results on uniformly high order accurate essentially non-oscillatory schemes.
J. App. Num. Math. 2, 347-377 (1986); also in “Advances in Numerical and Applied Mathematics”, J.C. South, Jr. and M.Y. Hussaini, (eds); ICASE Report #86-18 (March 1986).
32. A. Harten, B. Engquist, S. Osher, S. Chakravarthy
Uniformly high order accurate essentially non-oscillatory schemes. III.
J. Comp. Phys. 71, 231-303 (1987); also ICASE Report #86-22 (April 1986).
33. A. Harten
ENO schemes with subcell resolution.
J. Comp. Phys. 83, 148-184 (1989); also ICASE Report No. 87-56 (August 1987).
34. A. Harten
ENO schemes with subcell resolution
J. Comput. Phys. 83, 148-184 (1989).
35. A. Harten
From artificial viscosity to ENO schemes
In “The Numerical Modelling of Nonlinear Stellar Pulsations: Problems and Prospects”,
J. Robert Buchler, Editor, NATO ASI Series, Kluwer Academic Publishers, 1990.
36. A. Harten and S. R. Chakravarthy
Multi-dimensional ENO schemes for general geometries
ICASE Report 91-76, September 1991; also submitted to Jour. Comput. Phys.
37. A. Harten
Discrete multiresolution analysis and generalized wavelets
J. Applied Num. Math., vol. 12, pp. 153-193(1993); also UCLA CAM Report 92-08,
February 1992.
38. A. Harten and I. Yad-Shalom
Fast multiresolution algorithms for matrix-vector multiplication
ICASE Report 92-55, October 1992; to appear in SIAM Jour. Num. Anal.
39. A. Harten
Multiresolution algorithm for the numerical solution of hyperbolic conservation laws
Comm. Pure Appl. Math., Vol. XLVIII pp. 1305-1342 (1995); also UCLA CAM
Report 93-03, March 1993

PAPERS PRESENTED AT SCIENTIFIC MEETINGS

1. R.T. Ho and A. Harten
On Green's Function Techniques for Solutions of Floating Body Problems.
Proceedings of the ASCE Conference, University of Delaware, U.S.A. (1975).
2. A. Harten
An Efficient Differentio-Integral Equation Technique for Time-Dependent Potential Flows with a Free Surface
Proceedings of the First International Conference on Numerical Ship Hydrodynamics, Bethesda, Maryland, U.S.A. 717-728 (1975).
3. H.C. Yee, R.R. Warming and A. Harten
A High-Resolution Numerical Technique for Inviscid Gas-Dynamic Problems with Weak Solutions
Proceedings of the Eighth International conference on Numerical Methods in Fluid Dynamics, Aachen, West Germany (June 1982); Lecture Notes in Physics, Springer Verlag 170, 546-552 (1982) (Refereed paper accepted on the basis of a competition.).
4. A. Harten
Adaptive Numerical Methods for Hyperbolic Conservation Laws
Proceedings of the Workshop on Adaptive Numerical Methods for Partial Differential Equations, University of Maryland, College Park, U.S.A. (1983) (Invited Lecture) (Refereed).
5. A. Harten
Nonoscillatory Second-Order Accurate Shock-Capturing Schemes
Proceedings of the Third International Symposium on Numerical Methods in Engineering, Paris, France 35-44, Pluralis, Paris, France (March 1983) (Invited Lecture) (Refereed).
6. H.C. Yee, R.F. Warming and A. Harten
Application of TVD Schemes for the Euler Equations of Gas Dynamics
Proceedings of the AMS-SIAM Summer Seminar on Large-Scale Computations in Fluid Dynamics, La Jolla, California, U.S.A. (July 1983) (Invited Lecture). Lectures in Applied Mathematics, Vol. 22, 357-377.
7. H.C. Yee, R.F. Warming and A. Harten
On a Class of TVD Schemes for Gas Dynamic Calculations
In "Numerical Methods for the Euler Equation of Fluid Dynamics", F. Angrand, A. Dervieux and R. Glowinski, eds., SIAM, 1985, 84-107; Proceedings of the INRIA Workshop on Numerical Methods for the Euler Equations of Compressible Inscid Fluids, Rocquencourt, France (December 1983) (Invited Lecture).
8. A. Harten
On High-order accurate interpolation for Non-oscillatory shock capturing schemes
In "Oscillation Theory, Computation and Compensated Compactness", C. Defarinos,

- J.L. Ericksen, D Kinderlehrer and M. Slemrod, eds., Springer-Verlag 1986, 71-106; also MRC Technical Summary Report # 2829, June 1985.
9. S. Chakravarthy, A. Harten, S. Osher
Essentially non-oscillatory shock capturing schemes of arbitrarily-high accuracy. AIAA-86-0339, Reno, Nevada, (January 1986).
 10. A. Harten
Preliminary results on the extension of ENO schemes to two- dimensional problems. in “Nonlinear Hyperbolic Problems”, C. Carasso, P.A. Raviart and D. Serre (eds.), Lecture Notes in Mathematics 1270, 23-40, Springer-Verlag 1987; Proceedings of the International Conference on Hyperbolic Problems, Saint-Etienne, (January 1986).
 11. A. Harten
On the nonlinearity of modern shock-capturing schemes.
In “Wave Motion: Theory, Modelling, and Computation”, Proceedings of a Conference in Honor of the 60th Birthday of Peter Lax, A.J. Chorin and A.J. Majda, Editors, Mathematical Sciences Research Institute Publications, Springer-Verlag, 1987, pp. 147-201; also ICASE Report No. 86-69.
 12. A. Harten
From artificial viscosity to ENO Schemes.
In “The Numerical Modelling of Nonlinear Stellar Pulsations: Problems and Prospects”, J. Robert Buchler, Editor, NATO ASI Series, Kluwer Academic Publishers, 1990.
 13. A. Harten
Recent Developments in Shock Capturing Schemes.
In Proceedings of the International Congress of Mathematicians, Kyoto, Japan, August 1990.

REPORTS

1. A. Harten
The Method of Artificial Compression: I. Shocks and Contact Discontinuities
ABC Research and Development Report COO-3077-50, Courant Institute of Mathematical Sciences, N.Y.U., N.Y., U.S.A. (June 1974); also a Ph.D. dissertation.
2. A. Harten and Y.K. Chung
Green’s Function Techniques for the Solution of Time-Dependent Potential Flows with a Free Surface in a Bounded Domain
ERDA Research and Development Report COO-3077-100, Courant Institute of Mathematical Sciences, N.Y.U., N.Y., U.S.A. (December 1975).
3. H.C. Yee, R.F. Warming and A. Harten
On the Application and Extension of Harten’s High Resolution Scheme
NASA Technical Memorandum 84256 (June 1982) (Refereed).

4. M. Brio, C.C. Wu, A. Harten and S. Osher
Upwind Differencing and MHD Equations.
Transactions of The Fourth Army Conference on Applied Mathematics and Computing,
ARO Report 87-1.
5. W. Cai, D. Gottlieb and A. Harten
Cell Averaging Chebyshev Methods of Hyperbolic Problems.
ICASE Report No. 90-27 (NASA Contractor Report 182028) March 1990.
6. A. Harten
Multi-resolution Analysis for ENO schemes
ICASE Report 91-77, September 1991; also in Proceedings of the ICASE/LaRC work-
shop on algorithmic trends in CFD for the 90's.
7. A. Harten
Adaptive multiresolution schemes for shock computations
UCLA-CAM Report 93-06, April 1993.
8. A. Harten
Multiresolution representation of data
UCLA CAM Report 93-13, June 1993.
9. R. Donat and A. Harten
Data compression for locally oscillatory data
UCLA CAM Report 93-26, July 1993.
10. F. Arandiga, R. Donat and A. Harten
Multiresolution based on weighted averages of the hat function
UCLA CAM Report 93-34, September 1993.
11. A. Harten
Multiresolution Representation of Data. II. General Framework
Technical Report 3-94, Tel Aviv University and Department of Mathematics, UCLA,
April 1994.