BORIS EPSTEIN

CV (Last modified: January 2016)

PERSONAL DATA

- Address: 1A Jascha Heifetz St., Tel-Aviv, 6967230 Israel
- Phone: +972-3-7443550 (home)
  +972-547-211068 (mobile)
- Email: epstein@mta.ac.il

- Date and place of birth: 17 Nov.1947, Moscow, Russia
- Citizenship: Israel
- Date of immigration: 20 Aug. 1978
- Marital status: Married + 1

EDUCATION

- **Ph.D.**, Applied Mathematics, University of Leningrad (Saint-Petersburg), Russia, **1975**
- **M.Sc**., Mathematics, University of Leningrad, **1970**

AREAS OF EXPERTISE

- Computational Fluid Dynamics (CFD)
- Evolutionary methods for optimization problems
- Numerical methods for partial differential equations
- Scientific computing and scientific programming
- Parallel computing
- Computer aided aerodynamic design of air vehicles

ACADEMIC EXPERIENCE

The Academic College of Tel-Aviv-Yaffo, Israel
2015 - *Professor Emeritus*
2005 - 2015 *Full Professor,* School of Computer Science
2004 - 2010 ***Dean,* School of Computer Science**
1997 - 2005 *Associate Professor* (Full-time faculty member)
Tel-Aviv University, Israel
1997 - 2000 *Research scientist*
2000 - 2002 *Instructor*
The Open University, Israel
1996 - 1997 *Instructor*
University of Leningrad (Saint-Petersburg), Russia
1971 - 1973 *Instructor*

EXPERIENCE IN INDUSTRY

1997- 2011	*Consultant* to Israel Aircraft Industries (IAI) in the field of scientific programming and parallel computing.
1987-1996	**Head – Computational Fluid Dynamics (CFD) R&D Dep**., Flight Sciences Engineering, Israel Aircraft Industries.
1979-1987	*Research scientist, system analyst* – CFD Dep., Flight Sciences Engineering, Israel Aircraft Industries.
1974-1978	*Computer programmer, software manager*, Oil Refinery Office, Leningrad (Saint-Petersburg), Russia.

CONSULTING ACTIVITIES

2011-present	OPTIMENGA Ltd.
1997-2011	IAI - Israel Aerospace Industries (Engineering Center)
2002	ORBOTECH
2001-2013	MoD - Ministry of Defense
1997-1999	IARD (Israeli Institute of Research and Development)
1997-2001	Tel-Aviv University

PARTICIPATION IN MAJOR PROJECTS

2007- present	Optimization of aerodynamic shapes driven by massively parallelized CFD and Genetic Algorithms – **principal code co-developer**.
1997- 2005	Parallelization of industrial CFD codes on multiprocessors – **principal code co-developer**.
1991- 2002	Development of advanced CFD software for numerical simulation of viscous flow around practical configurations. **Principal code developer and project coordinator**.
1987-1996	Project MGAERO (from 1990 joint venture with Analytical Methods Inc., USA): development, implementation and marketing of an industrial CFD computer code; over 50 installations in USA, Canada, France, Germany, Japan and other countries. **Principal code developer and project coordinator**.
1979-1996	CFD aided design of transport-type aircrafts: "ASTRA", "GALAXY" and their derivatives.
1979-1996	CFD aided design of various aerodynamic configurations (military, civil and UAV).
1979-1987	CFD aided design of fighter-type aircrafts, including "LAVI".

LIST OF MAJOR COMPUTER CODES DEVELOPED

Program Name	Description
OPTIMENGA	Optimization of 2D and 3D aerodynamic shapes by evolutionary methods
PARNES	Parallel high accuracy 3D Navier-Stokes solver for complete aircraft simulation on distributed memory clusters
NASTIA	3D compressible full Navier-Stokes solver for internal and external flows around complex aerodynamic configurations
MGAERO	3D Cartesian multigrid Euler solver for arbitrary aircraft configurations
WINGDES	Inverse design of aerodynamic wings
MGPOTAC	3D Cartesian full potential solver for arbitrary aircraft configurations

GRANTS

2012 R&D IMoD (Israel Ministry of Defense)
Subject: Genetic Approach to the solution of PDE

2011 R&D IMoD (Israel Ministry of Defense)
Subject: Actuator disk modeling for Euler and Navier-Stokes equations

2010 R&D IMoD (Israel Ministry of Defense)
Subject: Multi-Accuracy Approach to Industrial CFD Simulations

2009 R&D IMoD (Israel Ministry of Defense)
Subject: Development and implementation of advanced Reuced-Order-Model for High Accuracy Industrial Aerodynamics

2008 R&D IMoD (Israel Ministry of Defense)
Subject: Treatment of heterogeneous CFD disctretizations

2007 R&D IMoD (Israel Ministry of Defense)
Subject: Optimization of optimal paths for re-entry vehicles

2006 R&D IMoD (Israel Ministry of Defense)
Subject: Improvement of efficiency for parallel CFD algorithms

2005 R&D IMoD (Israel Ministry of Defense)
Subject: Incorporation of constraints into CFD-aided aerodynamic design

2004-2005 R&D IMoD
Subject: Development of parallel cooperative strategy for computation of large-size aerodynamic data-bases.

2004 R&D IMoD
Subject: Development of a high-accuracy numerical method for large-scale simulation of hypersonic flows with implementation on multiprocessor systems.

2003 R&D IMoD
Subject: Development of LAM-ROM method (Local Approximation Method -Reduced Order Models) for parallel Computational Fluid Dynamics.

2002 R&D IMoD
Subject: Implementation of the WENO (Weighted Essentially non-Oscillatory) method in Navier-Stokes computations.

SCIENTIFIC ACTIVITIES (2000-present)

2014-
"Mathematical Models and Computer Simulations": **Editorial Board membership**
2003-2004
ECCOMAS 2004 (4th European Congress in Applied Sciences and Engineering).
Scientific Committee membership.
2010 ECCOMAS CFD 2010 (5th European Congress on Computational Fluid Dynamics.
Scientific Committee membership.
2006-2010
Applied Computing 2006 (IADIS – International Association for Development of Information Society - International Conference)**. Scientific Committee membership**.
2006-
"Open Aerospace Journal": **Editorial Board membership**
2005-
Reviewer for "**Computers and Fluids**" (an International Journal)
2009-
"International Journal of Aerospace Engineering": **Editorial Board membership**
2007-
Reviewer for "**Computer Methods in Applied Mechanics and Engineering**"
2011-
Reviewer for "**Chinese Journal of Aeronautics**"
2009-
Reviewer for "**Journal of Aircraft**"

Active participation in international conferences and scientific visits

January **2014**
Participation in AIAA Science and Technology Forum (AIAA SciTech 2014) – USA. Technical presentation.

April **2013**
Participation in Weizmann Institute Workshop 2013 on Multilevel Computational Methods and Optimization. Technical presentation.

January **2013**
Participation in AIAA Science and Technology Forum (AIAA SciTech 2013) – USA. Technical presentation.

March **2012**
Visit to Centre Européen de Recherche et Formation Avancées en Calcul Scientifique (CERFACS).

September **2011**
Participation in **ECCOMAS EUROGEN 2011** Conference **(**Evolutionary and Deterministic Methods for Design, Optimization and Control with Applications to Industrial and Societal Problems) in Capua (Italy).

November **2010** Participation in **Mathematical and Numerical Modelling** in Science and Technology (International Workshop), University of Jyväskylä, Finland.
Invited lecture.

September **2010**
Participation in **ENGOPT 2010,** 2nd International Conference on Engineering Optimization in Lisbon, Portugal. Technical presentation.

November **2009**
Participation in **21st CENTURY CHALLENGES IN COMPUTATIONAL ENGINEERING and SCIENCE,** *An International Symposium on the occasion of the 75th Birthday of Antony Jameson,* Technical presentation.
June **2009**
Participation in **ECCOMAS EUROGEN 2009** Conference **(**Evolutionary and Deterministic Methods for Design, Optimization and Control with Applications to Industrial and Societal Problems) in Cracow (Poland). Technical presentation. **Session chair: Optimization algorithms**.
June **2009**
Participation in **19th CFD AIAA** Conferences in San-Antonio, Texas. Technical presentation.

July **2008**
Participation in **WCCM8/ECCOMAS 2008** (World Congress on Computational Mechanics/European Congress on Applied Sciences) in Venice (Italy). Technical presentation.
May **2008**
Participation in **ParCFD 2008** (Parallel Computational Fluid Dynamics 2008) in Lyon, France. Technical presentation.

June **2007**
Participation in **ECCOMAS EUROGEN 2007** Conference **(**Evolutionary and Deterministic Methods for Design, Optimization and Control with Applications to Industrial and Societal Problems) in Jyvaskyla (Finland). Technical presentation. **Session chair: Machine learning**.
May **200**7
Participation in **ParCFD 2007** (Parallel Computational Fluid Dynamics 2007) in Antalya, Turkey. Technical presentation.

September **2006**
Participation in **ECCOMAS CFD** Conference in Egmond-aan-Zee (Holland). Technical presentation.
June **2006**
Technical presentation at **Stanford University**.
June **2006**
Technical presentation at **Phantom Works** (Huntington Beach, California).
June **2006**
Participation in **24rd APA** (Applied Aerodynamics) Conference in San Francisco (California). Technical presentation.

September **2005**
Participation in **EUROGEN 2005** Conference **(**Evolutionary and Deterministic Methods for Design, Optimization and Control with Applications to Industrial and Societal Problems) in Munich (Germany). Co-author of an invited lecture.
June **2005**
Participation in **17th CFD AIAA and 23rd APA** (Applied Aerodynamics) Conferences in Toronto (Canada). Technical presentation.
January **2005**
Participation in **43rd Aerospace Sciences Meeting** in Reno,NV (USA). Technical presentation.

July **2004**
ECCOMAS 2004 (4th European Congress on Computational Methods in Applied Sciences and Engineering). Technical presentation**. Scientific Committee membership**.
March **2004**
Participation in **IPDO** (Inverse problems, design and optimization) symposium in Rio de Janeiro (Brazil). Technical presentation.

September **2003**
Participation in **EUROGEN2003** (Evolutionary Methods for Design, Optimization and Control), Barcelona, Spain. Technical presentation.
June **2003**
Participation in the **16th AIAA** Computational fluid Dynamics Conference**,** Orlando,Fl**.** Technical presentation.
June **2003**
Participation in the **2nd M.I.T. Conference** (Cambridge, Ma.) on Computational Fluid and Solid Mechanics. Technical presentation.

October **2002**
Participation in **ISCM-13** (13th Israel Symposium on Computational Mechanics) as an

invited lector. **Invited technical presentation**.
September **2002**
Participation in the 23rd International Congress of Aeronautical Sciences (**ICAS 2002**), Toronto, Canada. Technical presentation.
May **2002**
Participation in **ParCFD 2002** (Parallel Computational Fluid Dynamics 2002) in Nara, Japan. Technical presentation.

September **2001**
Participation in First **SIAM-EMS** (Society for Industrial and Applied Mathematics – European Mathematical Society) Conference "Applied Mathematics in our Changing World" – **Session chair: Engineering Design**.
June **2001**
Participation in Aerospace Exhibition and Air Show in Le Bourget, France.

October **2000**
Participation in the 2nd International **AMIF (**Applied Mathematics for Industrial Flows) Conference (Tuscany, Italy). Technical presentation.
May **2000**
Participation in the **Symposium on Partial Differential Equations**, St-Petersburg, Russia. Technical presentation.

September **1999**
Participation in the 1999 International Conference on **Parallel Processing**, the University of Aizu, Japan.
June **1999**
Participation in the **14th AIAA** Computational fluid Dynamics Conference**,** Norfolk, Va. Technical presentation.
June **1999**
NASA Langley Research Center, Hampton, Virginia. **Visiting scientist** at the **ICASE** (Institute for Computer Applications in Science and Engineering).
June **1999**
Participation in the **International** Workshop: **Advanced Multigrid Methods** at the **Weizmann Institute** of Science (Rechovoth, Israel). **Invited technical presentation**.

October **1998**
Participation in the **Workshop** on **Numerical Methods** for Partial Differential Equation at the **University of Jyvaskyla**, Finland. Technical presentation.
October **1998**
Participation in the 1st International **AMIF** (Applied Mathematics for Industrial Flows) Conference (Spain).
June **1998**
Participation in the International Conference on Spectral And High Order Methods (**ICOSAHOM**), Herzliya, Israel.
April **1998**
Visiting scientist at the **University of British Columbia (UBC),**Vancouver, Canada. **Technical presentations** at **UBC** and **Simon-Fraser University**.

COURSES TAUGHT (1997-present)

- Mathematical puzzles
- Introduction to automata, grammars and compilation (new elective course developed)
- Computer structure
- Genetic Algorithms (new graduate elective course developed)
- Business Intelligence (new elective course developed)
- Scientific computation and scientific programming (new graduate elective course developed)
- Discrete mathematics
- Calculus
- Computer organization and Assembly language
- Various programming workshops (a total of above 200 projects supervised)
- Graduate seminar on optimization methods
- M.Sc. projects (16 projects in 2005-2015)

PUBLICATIONS

(AIAA = American Institute of Aeronautics and Astronautics,
AIAA Journal = the journal devoted to research and development)

Archive Publications:
Book Chapters

1. Epstein, B., Seror, S., Peigin, S. and Rubin, Development of an accurate multiblock multiface parallel Navier-Stokes code NES with the Spallart-Almares model for complex aerodynamic configurations, Aerospace Applications From High Subsonic to Hypersonic Regime: 460-469, CIMNE, Barcelona, Spain, 2002.

2. Peigin, S., Epstein, B., Seror, S. and Rubin, T., Parallel high accuracy CFD code for complete aircraft viscous flow simulations, in Parallel Computational Fluid Dynamics: New Frontiers and Multi-disciplinary Applications: 507-514, Elsevier, 2003.

3. Peigin, S. and Epstein, B., Multilevel parallelization strategy for optimization of aerodynamic shapes, in Parallel Computational Fluid Dynamics: Advanced Numerical Methods, Software and Applications: 505-512, Elsevier, 2004.

4. Epstein, B. and Peigin, S., Massive parallelization as principal technology for constrained optimization of aerodynamic shapes, in Parallel Computational Fluid Dynamics: Multidisciplinary Applications: 33-44, Elsevier, 2005.

5. Peigin, S., Epstein, B., and Gali, S., "Parallel implementation of fictitious surfaces method for aerodynamic shape optimization", in Lecture notes in computational science and engineering, vol. 74: 71-82, Springer, 2010.

6. Peigin, S., and Epstein, B.,"Parallelization for industrial CFD based analysis and design", in Trends in Parallel, Distributed, Grid and Cloud Computing in Engineering, Computational Science, Engineering and Technology Series, vol. 27: 269-290, Saxe-Coburg Publications, 2011.

Published papers

1. Epstein, B. and Shuster, A., Construction of the tabular values in the numerical integration of a system of ordinary differential equations (Russian), Met. Vichisl., 8:19-22, 1973, MR**,** 50, 1975, #8988.

2. Epstein, B. and Rivkind, V., High accuracy schemes for solving the Navier-Stokes equations (Russian), Numerical Methods in the Mechanics of Continuous Medium, 4, No. 5; 105-111, 1973.

3. Epstein, B., A scheme of variable directions type for the Navier-Stokes problem

(Russian, English Summary), Vestnik Leningrad Univ., 7, Math. Mech. Astronom., 2: 166-168, 1974, MR, vol. 50, #6186, 1975.
The American Mathematical Society in*: VESTNIK* Leningrad University Mathematics, 7,1979.

4. Epstein, B. and Rivkind, V., Projection schemes for the solution of the Navier- Stokes equations in orthogonal curvilinear coordinates (Russian, English summary), Vestnik Leningrad Univ., 13, Math. Mech. Astronom., 3**:** 56-63, 1974, MR, vol. 50, #11799, 1975.
The American Mathematical Society in: *VESTNIK* Leningrad University Mathematics, 7, 1979.

5. Epstein, B. and Rivkind, V., Grid schemes with projection for the solution of the equations of the dynamics of viscous incompressible fluid (Russian, English summary), Vestnik Leningrad Univ**.,** 13, Math. Mech. *Astronom*., 3:144-147, 1975, MR vol. 52, #9808, 1976.

6. Epstein, B. and Rivkind, V., Net schemes for the Navier- Stokes equations associated with projections, USSR Comp. Math. Physics**,** 15:1056-1061, 1975.

7. Rivkind, V. and Epstein, B., Alternating directions net schemes for solving the Navier - Stokes equations in orthogonal curvilinear coordinates, Transactions of the Seminar on Viscous Fluid Mechanics (Russian), Novosibirsk, 1: 90-95, 1976.

8. Epstein, B. and Rivkind, V., Numerical experiment by projection schemes for the Navier-Stokes equations (Russian), Methods of Computation, (Metody Vichisl.), 10:143-151, 1976.

9. Luntz, A. and Epstein, B., Modular potential flow computation including fuselage and wing tip effects, Israel Journal of Technology, 21:76-80, 1983.

10. Rivkind, V. and Epstein, B., The numerical method for solving non-stationary free boundary problems for the Navier-Stokes equations in curvilinear systems, Vestnik Leningrad Univ., 13: 79-83, 1984.

11. Luntz, A. and Epstein, B., A. A multigrid full potential transonic code for arbitrary configurations**,** GMD - Studien Nr 110 (German Institute for Mathematics and Data Processing), GMD Sankt-Augustin, Germany, 101-110, May 1986.

12. Epstein, B., Luntz, A. and Nachshon, A. Multigrid Euler solver about arbitrary aircraft configurations, with Cartesian grids and local refinement, proceedings of AIAA 9th CFD Conference, Buffalo, N.Y., AIAA, 89:312-321, 1989.
Reproduced in the book: Josef Rom, High Angle of Attack Aerodynamics, Springer-Verlag, pp. 279-282, 302-305, 1991.

13. Epstein, B., Luntz, A. and Nachshon, A., Multigrid transonic computations about arbitrary aircraft configurations, AIAA Journal of Aircraft**,** 26:751-759, 1989.

14. Epstein, B., Luntz, A. and Nachshon, A., Cartesian Euler method for arbitrary aircraft configurations, AIAA Journal**,** 30: 679-687, 1992.

15. Tidd, D., Strash, D., Epstein, B., Luntz, A., Nachshon, A. and Rubin, T., Multigrid Euler calculations over complete aircraft, AIAA Journal of Aircraft**,** 29: 1080-1085, 1992.

16. Epstein, B., Jacobs, A. and Nachshon, A., Aerodynamically accurate three-dimensional Navier-Stokes method, AIAA Journal, 35(6)**:**1089-1090, 1997.

17. Epstein, B., ENO numerical approach and 3-D aerodynamic computations, Analysis and Approximation of Boundary Value Problems: 39-53, University of Jyvaskyla, Finland, 2000.

18. Averbuch, A., Epstein, B., Ioffe, L. and Yavneh, I., Efficient parallelization of a three-dimensional Navier-Stokes solver on MIMD multiprocessors, The Journal of Supercomputing, 17(2): 123-142, January 2000.

19. Epstein, B., Yavneh, I. and Averbuch, A., An accurate ENO driven multigrid method applied to 3-D turbulent transonic flows, Journal of Computational Physics**,**168, 316-338 (2001).

20. Epstein, B., Rubin, T. and Seror, S., Accurate multiblock ENO driven Navier-Stokes solver for complex aerodynamic configurations, AIAA Journal, 41(4): 582-594, April 2003.

21. Peigin, S., Epstein, B., Seror, S. and Rubin, T., Parallel large scale high accuracy Navier-Stokes computations on distributed memory clusters, The Journal of Supercomputing, 27(1): 49-68, 2004.

22. Epstein, B. and Peigin, S., Application of WENO (Weighted Essentially Non-oscillatory), approach to Navier-Stokes computations, The International Journal of Computational Fluid Dynamics, 18(1): 289-294, 2004.

23. Peigin, S. and Epstein, B., Embedded parallelization approach for optimization in aerodynamic design, The Journal of Supercomputing, 29: 275-295, 2004.

24. Peigin, S. and Epstein, B., Robust optimization of 2-D airfoils driven by full Navier-Stokes computations, Computers & Fluids (An International Journal), vol. 33, Issue 9: 1175-1200, 2004.

25. Braverman, E., Epstein, B., Israeli, M. and Averbuch, A., A fast solver for elliptic equations, Journal of Scientific Computing, Vol. 21, Issue 1: 91-128, 2004.

26. Peigin, S. and Epstein, B., Robust handling of non-linear constraints for GA optimization of aerodynamic shapes, International Journal of Numerical Methods in Fluids, vol. 45: 1339-1362 (2004).

27. Epstein, B. and Peigin, S., Robust hybrid GA/ROM approach to multi-objective constrained optimization in aerodynamics, AIAA Journal, vol.42, Issue 8: 1572-1581 (2004).

28. Epstein, B., Seror, S., Peigin, S. and Rubin, T., Implementation and validation of the Spallart-Allmares turbulence model in parallel environment, AIAA Journal of Aircraft,

Vol. 42, No. 1: 179-188 (2005).

29. Peigin, S. and Epstein, B., Shape optimization via minimization of total drag, Inverse Problems in Science and Engineering, Vol.13, No. 3: 299-327 (2005).

30. Epstein, B. and Peigin, S., Constrained aerodynamic optimization of 3D wings driven by Navier-Stokes computations, AIAA Journal, vol.43, Issue 9: 1946-1957 (2005).

31. Epstein, B., Peigin, S. and Tsach, S., A new efficient technology of aerodynamic design based on CFD driven optimization, European Journal of Aerospace Science and Technology, vol. 10, No. 2 (March 2006).

32. Averbuch, A., Epstein, B., Fishelov, N. and Turkel, E., Edge enhancement using artificial dissipation, IEEE Transactions on Image Processing, vol. 15, no. 6: 1486-1498 (2006).

33. Peigin, S. and Epstein, B., Robust drag minimization of aerodynamic wings in engineering environment, AIAA Journal of Aircraft, Vol. 43, No. 4: 1195-1204 (2006).

34. Epstein, B. and Peigin, S., Optimization of 3D wings based on Navier-Stokes solutions and genetic algorithms, The International Journal of Computational Fluid Dynamics, 20(2): 75-92, (2006).

35. Epstein, B. and Peigin, S., Computational Fluid Dynamics driven optimization of blended wing body aircraft, AIAA Journal, Vol. 44 no.11: 2736-2745 (2006).

36. Peigin, S. and Epstein, B., Multipoint aerodynamic design of wing-body configurations for minimum drag, AIAA Journal of Aircraft, Vol. 44, No. 3: 971-980 (2007).

37. Epstein, B. and Peigin, S., Accurate CFD driven optimization of lifting surfaces for wing-body configuration, Computers & Fluids (An International Journal), vol. 36, Issue 9: 1399-1510, Nov. 2007.

38. Peigin, S. and Epstein, B., Efficient approach for multipoint aerodynamic wing design of business jet aircraft, AIAA Journal, Vol. 45 no.11: 2612-2621 (2007).

39. Peigin, S. and Epstein,B., Multi-constrained aerodynamic design of business jet by CFD driven optimization tool", European Journal of Aerospace Science and Technology", Vol.12, issue 2, March 2008: 125-134.

40. Peigin, S. and Epstein, B., Aerodynamic optimization of essentially three-dimensional shapes for wing-body-fairing, AIAA Journal, Vol. 46 no.7: 1814-1825 (2008).

41. Epstein, B., Jameson, A., Harrison, N., Peigin, S., Roman, D., & Vassberg, J., "Comparative study of 3D wing drag minimization by different optimization techniques", AIAA Paper 2008-326, 46th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 7-10, 2008, Journal of Aircraft, Vol. 46, No. 2, March-April 2009.

42. Epstein, B., and Peigin, S., "Treatment of non-matched grids for high-accuracy Navier-Stokes solutions", AIAA Journal, Vol. 48 no.7: 1542-1553 (2010).

43. Popovich, C., Shapiro, N., Epstein, B., Peigin, S., " Massively parallel industry-strength design of aerodynamic wings", Elsevier, Procedia Engineering, Vol.61, pp.292-297, 2013.

44. Peigin, S., and Epstein, B., "Automatic design of wing–body–nacelle configurations for minimum drag", AIAA Journal, Vol. 53, No. 7 (2015), pp. 1994-2004. doi: 10.2514/1.J053594

****

Refereed Papers in Conference Proceedings

1. Aboudi, D., Baharav, E., Epstein, B., Luntz, A. and Shepshelovitch, M., Canard, LEF design for a multi-mission fighter aircraft, Proceedings of 16th Congress of the International Council of the Aeronautical Sciences, Jerusalem, ICAS, 88:3.11.1, 1700-1713, Aug. – Sep. 1988.

2. Epstein, B., Luntz, A. and Nachshon, A., Multigrid computation of transonic flow about complex aircraft configurations, using Cartesian grids and local refinement, Proceedings of 16th Congress of the International Council of the Aeronautical Sciences, Jerusalem, ICAS, 88:4.7.3, 1038-1046, Aug.-Sep. 1988.

3. Epstein, B., Luntz, A. and Nachshon, A., An Euler solver for arbitrary configurations: further applications, Proceedings of the 31st Israel Conference on Aviation and Astronautics, 205- 216, February 1990.

4. Epstein, B., New features in CFD technology at the TASHAN Engineering Center at IAI, Proceedings of the 33rd Israel Conference on Aviation and Astronautics, pp. 125-132, February 1993.

5. Epstein, B., and Nachshon, A., An ENO 3-D Navier-Stokes solver applied to 2-D subsonic, transonic and hypersonic flows, 32nd Aerospace Sciences Meeting, Reno, NV, AIAA paper 94-0303, January 1994.

6. Epstein, B., Jacobs, A. and Nachshon, A., An ENO 3-D multilevel Navier-Stokes method: towards an aerodynamically accurate CFD tool, 15th International Conference on Numerical Methods in Fluid Mechanics, Monterey, California, June 1996.

7. Epstein, B., Jacobs, A. and Nachshon, A., Viscous computations by a 3-D ENO Navier-Stokes method, Proceedings of the 37th Israel Conference on Aviation and Astronautics, 98-109, February 1997.

8. Epstein, B., Averbuch, A. and Yavneh, I., An accurate ENO driven Multigrid method applied to 3-D turbulent transonic flows, Proceedings of the 14th AIAA Computational Fluid Conference, 705-715, Norfolk, Virginia, June 1999.

9. Seror, S., Epstein, B. and Rubin, T., Construction of a multiblock 3-D full Navier-Stokes code for practical aerodynamic computations, Proceedings of the 41st Israel Conference on Aviation and Astronautics, February 2001.

10. Arad, E., Epstein, B., Rubin, T. and Seror, S., Recent enhancements of the 3D Navier-Stokes code NES, Proceedings of the 42nd Israel Conference on Aviation and Astronautics, February 2002.

11. Peigin, S., Epstein, B., Rubin, T. and Seror, S., Parallel multiblock full Navier-Stokes code NES: 10 million points complete aircraft flow simulation, Proceedings of the 42nd Israel Conference on Aviation and Astronautics, February 2002.

12. Epstein, B, Seror, S. and Rubin, T., An accurate multiblock 3D ENO driven Navier-Stokes solver for complex aerodynamic configurations, Proceedings of the 23rd International Congress of Aeronautical Sciences (ICAS 2002), Toronto, Canada, September 2002.

13. Peigin, S., Epstein, B., Seror, S. and Rubin,T., Efficient parallelization strategy for a high accuracy Navier-Stokes algorithm, Proceedings of 41st Aerospace Sciences Meeting, AIAI paper 2003-430, Reno, Nevada, January 2003.

14. Averbuch, A., Braverman, E., Epstein, B. and Israeli, M., On substractional technique for fast direct spectral solution of Poisson and Helmholtz equations, Proceedings of the 3rd International DCDIS Conference on Engineering Applications and Computational Algorithms, May 2003, Gulph, Ontario, Canada.

15. Seror, S., Epstein, B., Rubin, T. and Peigin, S., Implementation and validation of the Spallart-Allmares turbulence model for parallel processing on PC's cluster, Proceedings of 21st AIAA Applied Fluid Dynamics Conference, Orlando, Florida, June 2003.

16. Epstein, B. and Peigin, S., A robust hybrid GA/ROM approach to multiobjective constrained optimization in aerodynamics, Proceedings of the 16th AIAA Computational Fluid Conference, Orlando, Florida, June 2003.

17. Peigin, S. and Epstein, B.,Genetic Algorithms for optimization of aerodynamic shapes, EUROGEN 2003 – Evolutionary Methods for Design, Optimization and Control, Barcelona, Spain, September 15-17, 2003.

18. Epstein, B. and Peigin, S., Constrained optimization of aerodynamic shapes via minimization of total drag, IPDO 2004 (Inverse Problems, Design and Optimization Symposium), Rio de Janeiro, March 2004.

19. Epstein, B. and Peigin, S., Robust drag minimization of aerodynamic shapes in engineering environment, Proceedings of the 23th AIAA Applied Aerodynamics Conference, Toronto, Canada, June 2005.

20. Peigin, S. and Epstein, B., CFD driven optimization of Blended Wing Body aircraft, Proceedings of the 24th AIAA Applied Aerodynamics Conference, San Francisco, California, June 2006.

21. Epstein, B., Jameson, A., Peigin, S., Roman, D., Harrison, N. and Vassberg, J., Comparative study of 3D wing drag minimization by different optimization techniques, Proceedings of 46th Aerospace Sciences Meeting, AIAA paper AIAA 2008-326, Reno, Nevada, January 2008.

22. J. Vassberg, S., Jameson, A. Peigin, B. Epstein, D. Roman and N. Harrison, A pilot project in preparation of an aerodynamic optimization workshop with lessons learned , AIAA Paper 2008-6226, 26th AIAA Applied Aerodynamics Conference, Honolulu, HI, August 18-21, 2008.

23. Peigin, S., and Epstein, B., Efficient Parallel Algorithm for Aerodynamic Design of Wing-Body-Junction Driven by Accurate Navier-Stokes Computations, 21st International Conference on Parallel Computational Fluid Dynamics, May 18–22, 2009, Moffett Field, California, USA

24. Epstein, B. and Peigin, S., Treatment of non- matched grids for high- accuracy RANS solutions, Proceedings of the 19th AIAA Computational Fluid Conference, AIAA paper AIAA-2009-3538, San-Antonio, Texas, June 2009.

25. Epstein, B. and Peigin, S., Parallel Treatment of non- matched grids for industrial Navier-Stokes simulations, 22nd International Conference on Parallel Computational Fluid Dynamics, May 17–22, 2010, Koohsiung, Taiwan.

****

Technical reports

Over 80 technical reports.