

Bercovier Michel

Born : September 10th, 1941

I. Academic Background

1976 Rouen University Doctorat d'Etat in « Functional Analysis Applied to Numerical Analysis »

1964 Paris University Licence es Sciences de Doctorat (Mathématiques)

II. Employment

2010- Also head of Computer Science, Hadassah College , Jerusalem.

2007- Professor of Computer Aided Geometry and Scientific Computation, School of Computer Science, and Engineering, Hebrew University of Jerusalem

1987-2007 Bertold Badler Chair of Computer Science, Hebrew University of Jerusalem

1983 - 1997 Associate Professor, Department of Computer Sciences, Hebrew University of Jerusalem

1979 - 1983 Senior Lecturer the School of Applied Science and Technology, Hebrew University of Jerusalem

1977 - 1979 Lecturer, the School of Applied Science and Technology, Hebrew University of Jerusalem (Head, Division of Applied Mathematics)

1973 - 1977 Manager, users' services and applications software at the Hebrew University Computer Center

1972 - 1973 Visiting Instructor, Inst. of Math., Hebrew University of Jerusalem

1970 - 1972 Head of Computer Center, Université de Rouen

1969 - 1977 Maître-Assistant (same place as above). Equivalent to Instructor with tenure (on leave 1972 – 1977)

1967 - 1969 Assistant – Department of Mathematics, Faculté des Sciences, Université de Rouen

1964 - 1965 T V director for an experiment in University teaching, Faculté des Sciences de Paris

III. Professional Experience

- Research in the field of finite element methods in non linear elasticity and in flows (Newtonian and non Newtonian), iterative algorithms for large problems. Distributed and Parallel Scientific Computing. Numerical methods in CAD.

Integration of CAD and CAE. Numerical Modeling in life sciences. Blending of CAD and CAE through Isogeometric Analysis (IGA).

- In Industry : consultant « tire modeling » mathematics/software KLEBER 1972 to 1981 ; MICHELIN 1981 to 1985 ; Advanced Eng. Software C.A.E. Haïfa (1983 – 1986) ; Matradatavision (1985 -) ; Fluent-FIDAP (1983 -1998) ; Renault (1986 -2000) ; Pechiney-Alcan-Rio-Tinto (1987 -) ; Hutchinson (1986 -) ; Eramet (1995 – 1997) ; Lyonnaise des Eaux, (1997 -2000) numerical simulations ; L'Oréal, (1996 -) on Internet and Intranet. Merck MSD (2004-2006), Ezface (2006-)

Others : ISSCAR Blades, Alliance tires, CEA (Cadarrache), EL-OP, TADIRAN, TAAS, IBM, DEC (USA), Bridgestone, Sumitomo Rubber (1993), Expert for High Tech IPOs., France Telecom, Expert Witness etc...

IV. Invited Lectures and Sejours

LAN Pavia, June 1976, July 1981. INRIA Rocquencourt, October 1976, August 1981, March 1982. ICASE (NASA, LANGSLEY), August 1977. Ecole Polytechnique, Paris, Jan. 1978, Ap. 1982 US AirForce Flight Test Lab., Dayton, Ohio, 1979 MIT, April 1979, Université Laval, Québec, 1979. U. of Colorado, Boulder, 1980, 1981, 1982. U. of Georgia, April 1981. U. of Paris-Nord, 1981 (Visiting Prof.) Batelle Institute, London, Jan. 1985. IBM Centre Scientifique Paris (1985 – 1986 Visiting Senior Scientist). E.N.S. Ulm Paris, Visiting Prof. 1986. SASIAM, Bari, Italy, June 1987, July 1988. IBM Bergen Scientific Center, Norway, Summer 1987. U. of Kaiserslautern, Dec. 1989. Ceremade, Paris, Oct. 1989 – Feb. 1990 (Visiting Prof.) Fibonacci Inst. of Foundation of Comp. Science Trento, Invited Prof. Summer 1990. Pfalz Inst. of Maths, Kaiserslautern U., Summer school on advances in FEM. (Scientific director and main lecturer), June 1991. University of Paris 6, Visiting Professor, Sept. 1991 – Jan. 1992. Chuo University, Tokyo, Advances in CFD, April 1993. Purdue U., College of Eng., Indianapolis, April 1995. Feb. 1997. EPFL, Lausanne, Département de Mathématiques Appliquées, December 1996. Erlangen, 1997. Invited Professor, University of Paris Dauphine (1995 – 1996 and 1999). « Directeur d'Etudes et de Recherches », Pôle Universitaire Léonard de Vinci, La Défense (1996 – 1998). Paris VI , February 2000. MIT June 2001. TU Wein, June 2002. Universite ParisDauphine, March 2004, U-Kaiserslautern, April 2004. EPFL, Sept 2004. Universite Pierre et Marie Curie , Feb 2005-July 2005, Feb 2006-July 2006. Sienna (summer 2006), Pavia , Feb. 2010

V. Editor, Reviewer

Journal of Computational Physics, Computer and Fluids, Applied Mechanics Review, Journal of Crystal Growth, Int. J. for Num. Methods in Fluids (*editorial board*), Int. J. Heat and Mass Transfer, IEEE on TVGC, Numerical Heat Transfer, Int. J. of Computer Applications in Technology (*Editorial Board*), ACM Transaction on Graphics, M.A.A.N., Computational Mechanics, ONERA journal, English Edition (*editorial board*), Computer Aided Geometric Design, Computer Aided Design, Computer Modeling in Engineering and Science, (*editorial board*). Int. J. for Num. Methods in Engineering, SIAM Journal in Numerical

Analysis, The Int. J. of Computational Fluid Dynamics ;Progress in Computational Fluid Dynamics (*editorial board*); ASME jour. of. Hydraulics,Trans Of Graphics, Numerishe Maths, etc... Member of the Editorial Team, English edition of the Soviet Encyclopedia of Mathematics, D. Reidel Publishing Comp., 1993.,IJCAT (ass. Editor)

VI. Committees

Int. Committee, 3rd Int. Conf. FEM in fluids, Tokyo (1982) – Co-Organizer, the Franco-Israeli Binational Math. Sym., Jerusalem, March 1985 – IFIP, working group 2.5, (elected member, June 1985) – Int. Conf. On Comp-Mechanics, Tokyo, May 1986 (Steering Committee, Invited Speaker) – Int. Conf. On Comp. Mech. (organizing committee, Invited lect.), Atlanta, 1988 – CADG, Erice, May 1990 (Chairman) – Int. Conf. On Comp. Mech. (organizing committee), Greece, June 1991 – WG2.5 Int. Conf., Karlsruhe, Sept. 1991, (Organizing Committee) – First Int. Conf. On Comp. Fluid Appl., Basel, 1992 (Chairman) – Topics in CAGD 1993, (organizer) – 2nd Int. Conf. On CFD Applications, Basel, 1994 (Chairman) – SIA, Paris, 1996 – Eccomas, 1996, Int. Committee – 3rd Conf. On CFD, Basel, 1996 (Co-Chairman) – ICHT'97, Scientific Committee CAGD 97, June 1997, CRETE – SIA-Aeronautical Eng. Paris, Nov. 1997 - IACM'98, Scientific Committee and Keynote lecturer, Basel, 1998 (Co-Chairman) – CIRP STC Design Paris, Jan. 1998 keynote speaker – Eccomas 2000, International Com. CFD , Beijing Oct 2000 (Chairman). MIT2001 June . ICES01 Aug 2001. ICAM Wein 2001. Siam CAD meeting , November 2001. SIAM CAD meeting 2003. ECCOMAS 2004 (Finland). SIA , Risk and Simulation, Sept 2003. Crash (SIA 2004) . CFD in Transport (SIA 2005), MIT june 2005., DDM18 , Jerusalem, Organizer, (2008). SMP, Haifa 2010. "Atelier" HPC, SIA, October 2010.

VII .Board Member, Director

Aleph Yssum (1987 – 1996) - Bercom (1986 – 1996) - Numerica (Paris 1989-2000) - International Forum in High-Tech, Basel (1992 – 1996) - World Users Association in Computational Fluids, Chairman (1992 -2001) , – IACM , Israel (founding member)- Société des Ingénieurs Automobiles, Membre du Bureau Calcul (1994 -) – Numeca Intl, Bruxelles (1998 -)- Visiowave, Lausanne (1999-2002) -EzFace (2001-) – National Chamber of Computer Analysts, Israel (2001-). ExLibris (2003-). Head of W3C office in Israel (1999-2007). Conseil Scientifique et Pedagogique du Pole Leonard De Vinci, Paris la Defence (2000-2009), ECCOMAS Board(2009-), Hadassah College (2010-)

VII. Honours

Chevalier des Palmes Académiques (1986) – Conseiller du Commerce Extérieur (1993 renewed 1995)

VIII. Research Students – from 1990

- D. Ross (Ph.D. 1990), P. Allione (Ph.D. Paris 1990), A. Rodgold (Leibniz fellow 1991), Tishel E. (MSc. 1992), G. Schmeltz (Leibniz Post Doc, 1993 – 1994), O. Volpin (MSc. 1994, PhD 1999), E. Sheffer (MSc. 1995, PhD 1999), S. Aharon (Ph.D. 1995) A. Schlesinger (Ph.D. 1995), A. Jacobi (Ph.D. 1996), O. Ricou (Ph.D. Paris 1997). N. Volfovsky (Ph.D. 1998), M. Alhanaty (Ph.D. 2000), A. Marowka (MSc. 1995, PhD 2001), Tanya Matskevitch (Ph.D. 2001), Rami Tzafriiri (Ph.D. 2002), Rony Goldenthal (M.Sc. 2003, PhD 2010), Yehuda Arav (MSc 2003, PHD, 2009). Moshe Luzon (PhD 2005), Eran Ziman (MSc 2005), Muawayah Akash MSc 2005), Katerina Shechtman(MSc 2006), Rony Goldenthal (Msc + Phd 2010), Maxim Veinstein (2005-), Emanuel Hachamov(MSc 2007), Ilya Sloveychik (2010)

IX. Grants and Awards received within the past 5 years

- CAGD and Mesh Generation, Hutchinson, Paris, \$ 10000/a – 1994 – 2001, 2010
- Intranet and Distributed Work, L'Oréal Paris \$ 25000 –(2001-200)
- Question How W3C, European 5th program, Euros 80000 –(2002-2003)
- France Telecom-Yisum contract on technological watch Euro 100 000 (2002-2003)
- Gridification of MATLAB, R&D funds HUJI \$40000- (2004)

X. List of Publications (October 2010)

Michel Bercovier

List of Publications.

1. **Bercovier, M.**, *A Family of Finite Elements with Penalisation for the Numerical Solution of Stokes and Navier Stokes Equations*, in Proc. IFIP Conf. 1977. B. Gilchrist, ed., North Holland Amsterdam, 1977, pp. 97-101 (Part of Doctorate)
2. **Bercovier, M.** and Pironneau, O., *Estimations d'erreurs pour la résolution du problème de Stokes en éléments finis conformes de Lagrange*, C.R. Ac. Sc. Paris, t. 285. December 1977, pp. 1085-1087
3. **Bercovier, M.**, *Perturbation of Mixed Variational Problems, Application to Mixed Finite Element Methods*, RAIRO (Num. An), 12, no. 3, 1978, pp. 211-236 (part of Doctorate)
4. **Bercovier, M.** and Pironneau, O. *Comparisons and Error Estimates for Several Finite Elements for the Numerical Simulation of Incompressible Viscous Flows*, Conf. On Num. Math. In Laminar and Turbulent Flow, Taylor, ed., Pineridge Press, Swansea 1978
5. Engelman, M. and **Bercovier, M.**, *Estimation de l'erreur pour la résolution du problème de Stokes par un élément final quadrilatéral conforme sur les vitesses*. C.R. Ac. Sc. Paris, série A, t. 285. Feb. 1979, pp. 555-557.
6. **Bercovier, M.** and Pironneau, O., *Error estimates for finite element solution of the Stokes problem in the primitive variables*, Numerische Mathematik 33 : 211-224, 1979
7. **Bercovier, M.** and Livne, E., *A 4 CST Quadrilatéral Element for the Numerical Solution of Incompressible and Nearly Incompressible Materials* CALCOLO, XVI : 5-19, 1979
8. **Bercovier, M.** and Engelman, M. *Finite Element for the Numerical Solution of Viscous Incompressible Flows*, J. of Computational Physics, Vol. 30, 30 : 181-201, 1979
9. **Bercovier, M.**, Engelman, M. and Boman, J., *Numerical Simulation of non Newtonian blood flow models by a finite element method*, *Proceedings*, 4th International Symposium on Computing Methods in Applied Science and Engineering, Glowinski and Lions, ed., North-Holland, Amsterdam, 1980
10. **Bercovier, M.** and Engelman, M., *A Finite Element Method for Incompressible non Newtonian Flows*, J. of Comp. Physics, 36, 313-326, 1980
11. Bardos, C., **Bercovier, M.** and Pironneau, O., *Approximation numérique de l'équation d'Euler en dimension deux*, C.R. Ac. Sc., Paris, 289, Série A, 829-832, 1979 (Also detailed in Bardos, C., Bercovier, M. and Pironneau, O., *Vortex Method with Finite Element for the Euler Equation*, *Proceedings*, 4th International Symposium on Computing Methods in Applied Science and Engineering, Glowinski and Lions, ed., North-Holland, Amsterdam, 1980)
12. **Bercovier, M.**, *Approximation of Bingham's variational inequalities by a penalty function for the incompressibility constraint*. Numerical Functional Analysis and Optimization, Vol 2, (5), 361-373 (1980)

13. Bardos, C., **Bercovier, M.** and Pironneau, O., *The Vortex Method with Finite Elements*. Mathematics of Computation, 36 (153), 119-135, (1981)
14. **Bercovier, M.**, Berold, G. and Pironneau, O., *A Finite Method for the Numerical Solution of Transient Inviscid Incompressible Flows*. Invited paper for *Recent Advances in FEM and Fluids*, C. Taylor editor, Pineridge Press, 1981
15. Bercovier, M., Hasbani, Y., Gilon, Y. and Bathe, K.J. *A Finite Element Procedure for Non Linear Incompressible Elasticity*. Invited paper for Symp. on Hybrid and Mixed Methods, S. Atluri ed. Wiley (1981)
16. Jankovich, F., Durand, M. and **Bercovier, M.**, *A Finite Element Method for the Analysis of Rubber Parts, Experimental and Analytical Assessment*, Computers and Structures, 14, 385-391, 1981
17. **Bercovier, M.**, Pironneau, O., Hasbani, Y. and Livne, E., *Characteristics and FEM applied to the equation of fluids*. in Proc. MAFELAP 1981, Whiteman ed., J. Wiley and Sons, 1982
18. **Bercovier, M.**, Pironneau, O., *Characteristics and the finite element method*, invited lecture, 4th Int. Symp. Finite Element Methods in Flow Problems. Tokyo, July 1982, T. Kawai ed., North Holland Press
19. **Bercovier, M.**, *On C0 Beam Elements with Shear and their Corresponding Penalty Function Formulation*, Computer and Mathematics, '8', (4) 245-246, 1982
20. Engelman, M., Sani, R.L., Gresho, P.M. and **Bercovier, M.**, *Consistent versus Reduced Integration Penalty Methods for Incompressible Media Using Several Old and New Elements*, Int. J. Fort Num. Meth. In Fluids, 3, 25-42, 1982
21. Hasbani, I., Livne, E. and **Bercovier, M.**, *FEM and Characteristics applied to Advection Diffusion Equations*. Computer and Fluids, 11, N° 2 : 71-83, 1983
22. **Bercovier, M.**, Pironneau, O. and Sastri, V., *Finite Elements and Characteristics for some Parabolic/Hyperbolic Problems*. Applied Maths. And Modeling 7 : 89-96, April 1983
23. Schatzmann, M. and **Bercovier, M.**, *Vibrations with Unilateral Constraints*, Proc., 6th Intl. Symp. on Computing Methods in Applied Science and Engineering, Glowinski, R. and Lions, J.L. eds., North Holland, Amsterdam, 1984
24. **Bercovier, M.**, Pat, *A C Finite Element Method for the Analysis of Inextensible Pipelines*, Computers and Structures Vol. 18, N° 6, pp. 1019-1023, 1984
25. **Bercovier, M.**, *A New Quadratic Finite Element for the 3D Simulation of Incompressible Fluids Flows or Materials*, in Finite Element Method 85 (invited lecture), P.G. Bergan ed., August 1985, Trondheim., Springer 1986
26. **Bercovier, M.**, Rosenthal, A., *On Using Conjugate Gradient Method with Preconditioning for Solving FEM Approximations of Elasticity Problems*. Engineering Computations, Vol. 3 Iss: 1, pp.77 - 80
27. **Bercovier, M.**, Engelman, M., Fortin, M., Goldberger, N., *Simulation of Forming Processes by FEM with a Bingham Fluid Model*. IJNMF vol. 6, pp. 197-, 1986
28. Rittel, D., Roman, I. and **Bercovier, M.**, *A.F.E. Modeling of Embrittlement in Composite Liquid Phase Sintered Heavy Alloys*. J. Eng. Mat. Tech Vol 108. Pp. 159-162, 1986
29. Zdunek, A, B, **Bercovier, M.**, *Numerical Evaluation of Finite Elements Methods for Rubber Parts*. SAE Tech.

- Series, 860817, pp. 155-167, April 1986
30. **Bercovier, M.**, Hanna, K., and Jouve, F., *An Analysis of Refractive Surgery by the Finite Element Method*. Computational Mechanics'86 pp. IV 143-148, Yagawa and Atluri Ed. Springer Verlag, Tokyo, 1986
 31. **Bercovier, M.** and Engelman, M. *Simulation of Large Incompressible Flows by Finite Element Method* (as in N° 30 above pp. VII 89-97) (also Bercovier, M. and Engelman, M. *Simulation of Large Incompressible Flows by Finite Element Method II*. 10th Int. Conf. On Num.Meth. Fluid Dynamics, Beijing, 1986, pp.120-122, F.G. Zhuang and Y.L. Zhu ed., Springer Vg, 1986).
 32. Hanna K., Jouve F., **Bercovier M.**, Waring G., Ciarlet P.G., *Computer Simulation of Lamellar Keratectomy and Laser Myopic Keratomielosys*. J. of Refractive Surgery, vol. 4, 6, pp. 222-231, 1988
 33. Jouve F., Hanna K. and **Bercovier M.**, *Simulation of Keratotomy by 3D non linear FEM* Invited lecture at Computational Mechanics 88, Alturi ed., Springer Verlag, 1988
 34. **Bercovier, M.**, Jankovich, E., Durand, M. *The Development of a Mechanical Model for a Tire : A 15 Years Story to Replace Test Machines*, Second European Symposium on Mathematics in Industry, H. Neunzert ed., B.G. Teubner, Stuttgart, 1988
 35. Schatzman M., **Bercovier M.** *Numerical Approximation of a Wave Equation with Unilateral Constraints*, Mathematics of Computation, vol. 53, 187, pp. 55-79, July 89
 36. Ross, D., **Bercovier, M.** *Travelling Waves in a Cylinder Rolling on a Flat Surface*. R.A.I.R.O. MMAN, vol. 25, n° 1, pp. 129-150 (1991)
 37. **Bercovier, M.**, Jacobi, A., *Approximation / Construction of Curves by Minimization Methods with or without Constraints*, MMAN, vol. 26, pp. 211-232, 1992
 38. **Bercovier, M.**, Shital, E., *Enhancement of Gordon-Coons Interpolations by Bubble Functions*, CAGD, vol. 10, pp. 253-265, 1993
 39. **Bercovier, M.**, Jacobi, A., *Constrained Curves Construction by a Variational Approach*, CAGD, vol. 11, pp. 533-563, 1994
 40. Aharon, S., **Bercovier, M.** *Semi Automatic Computer Construction of Three-Dimensional Shapes for the Finite Element Method*. Comp. Method and Prog. In Biomedicine, vol. 41, pp. 135-146, 1994
 41. Ash, M., **Bercovier, M.**, *A Mixed 3D Finite Element of Modeling Thick Plate Bending*. Computational Mechanics, vol. 13, pp. 332-342, 1994
 42. **Bercovier, M.**, Ricou, O., *Dimensional reduction of a Stokes flow using a polynomial approximation*, pp. 225-234 Proceedings of the 9th Int. Conf. On FINITE ELEMENTS IN FLUIDS NEW TRENDS AND APPLICATIONS, Venezia It. Morandi Cecchi et al Eds, Wiley, 1996
 43. **Bercovier, M.**, Volpin, O., *Energy Duality Methods for Piecewise Bezier Curves Constructions*. Computer Graphics Forum, vol. 15, n° 2, june 1996, pp. 143-154
 44. Aharon, S., **Bercovier, M.**, Parnas, H. *Parallel computation enable precise description of Ca⁺⁺ distribution in nerve terminals*, 1996. Bulletin of Mathematical Biology, vol. 58 (6), 1075-1097
 45. Rappoport, A., Sheffer, E., Youlus, D., **Bercovier, M.**, *Volume-Preserving Free-Form Solids*, Number 563,

- Solid Modeling of the IEEE, TVCG vol. 2, n° 1, March 1996
46. **Bercovier, M.**, Volpin, O., Matskewich T., *Globally G1 Free Form Surfaces using « Real » Plate Invariant Energy Methods*, 10 pages, pp. 25-34, Proc. Of Surface 1996, A. LeMehaute et all Ed., Vanderbilt U Press, Nashville, 1997
 47. **Bercovier, M.**, Volfosky, N., Parnas, H., *Parallel Domain Decomposition for Reaction Diffusion Problems in « Computational Science for the 21st Century »*, pp. 102-111, Periaux et all ed., Wiley, 1997
 48. Gerbeau,J.F., Le Bris,C., **M. Bercovier,M.**, *Spurious velocities in the steady flow of an incompressible fluid subjected to external forces*, Int. Jour. Num. Meth. Fluids, 25, pp. 679-695, 1997
 49. Matskewich,T., Volpin,O. and **Bercovier,M.** *Discrete G1 Assembly of Patches over Irregular Meshes*, 8 p, in Mathematics of Surfaces, Lyche and Shumaker ed., Vanderbilt U. Press, 1998
 50. Sheffer, E., Blacker, T., **Bercovier, M.** *Clustering : Automated Detail Suppression Using Virtual Topology*, AMD, vol. 220, pp. 57-64, ASME, 1997
 51. Blacker, T.D., Sheffer, E., Clements, J., **Bercovier, M.**, *Using Virtual Topology to Simplify the Mesh Generation Process*, AMD, vol. 220, pp. 45-50, ASME, 1997
 52. Sheffer, E., Blacker, T.D., **Bercovier, M.**, *Virtual Topology Operators for Meshing the 6th International Meshing Roundtable*, October 13-15, 1997, Park City, Utah and Computational Geometry and Applications, 10(3) :309-331 2000 .
 53. Volpin,O., and **M. Bercovier,M.** *Generation of Quadrilateral meshes from triangular data with resulting smooth surface reconstruction*,Proc.IEEEConf.InformationVisualisation-IV98,London,July1998.
<http://www.computer.org/proceedings/IV/8509/>
 54. **Bercovier M.** *Optimal Approximation of Derivatives : an Application of the Mixed Finite Element Method*, 15 pages, in *Equations aux Dérivées Partielles et Applications*, Articles dédiés à JL. LIONS, O. Pironneau et all ed., Elsevier, June 1998.
 55. Volpin, O., Sheffer, E., **Bercovier, M.**, Joskowicz, L., *Local curvature based smooth surface over simplified mesh using plate energy method* CAD,30(11) :875-882, 1998.
 56. Volfosky N and **Bercovier M.**, *Parallel Domain Decomposition for Reaction Diffusion Problems II.* in Domain Decomposition Methods , Choi Hog- Lai et All ed. pp. 5-11, Wiley, 1999
 57. **Bercovier, M.**, Volpin, O., *Hierarchical Bezier Surface over Arbitrary Meshes*, Computer Graphics Forum,18(4) :223-236,1999.
 58. Sheffer A., Blacker T., **Bercovier M.**, *CAD Data Repair Based on Virtual Topology*, 10p, ASME publication, DECT 98, Proc of the 98 ASME Design Engineering Technical Conf., Sept 98 Atlanta
 59. Marowka A., and **Bercovier M.**, *A New Paradigm for Building Scalable and Portable Parallel Applications*, 10p. reviewed and accepted for ISCA 11th Conf. On Parallel and Distributed Computing Systems (PDCS 98), Chicago, Sept 1998. Editors : O. Bukhres and A.N. Choudhary, A. Publication of ISCA
 60. Sheffer A., Etzion M.,Rappoport A. and **Bercovier M.**, *Hexahedral Mesh Generation using Embedded Voronoi Graph* , Engineering with Computers , 15 :248-262, 1999.

61. Volpin O., **Bercovier M.** and Matskewitch T., *A Comparison of Invariant Energies for Free-Form Surface Construction*, The Visual Computer, 15 :199-210. 1999
62. Alhanaty M. and **Bercovier M.**, *Shape with Offsets of nearly Constant Surface Area* CAD, 31: 287-296, 1999.
63. Marowka A., Yarhi I. and **Bercovier M.**, *Scalable Portability Evaluation of High Performance Applications*. Int. J. of Computers and their Applications 7 (1) :39-47, 2000
64. Sheffer A. and **Bercovier M.**, *Hexahedral Meshing of Non-Linear Volumes Using Voronoi Faces and Edges*. INJME, 49 (1-2) :329-351 2000.
65. Matskewitch T., Inselberg A. and **Bercovier M.**, *Approximated Planes in Parallel Coordinates* , in Curves and Surfaces Design, Laurent PJ et all ed., pp257-266, Vandebuilt U Press, 2000.
66. Pavlov E., Luzon M. and **Bercovier M.**, *Detecting Coplanar Sets of Points in Space*. in «VMV200 » 407-414 ,B Girod et all ed. IOS press Amsterdam 2000.
67. Alhanaty M. and **Bercovier M.**, *Curve & surface fitting and design by optimal control methods*, in CAD, 33 : 167-182 , 2001.
68. **Bercovier M.**, Ricou O., *A Dimensional reduction of the Stokes problem* CMES, 3, No. 1, pp. 87-102, 2002
69. Marowka A., and **Bercovier M.**, *Scalable Portability Model of Parallel Computing* , PDCP, Vol3 ,#4,2002.
70. **Bercovier M.**, Luzon M. and Pavlov E. "*Detecting planar patches in an unorganized set of points in space*" Advances in Computational Mathematics, 17: 153-166,2002.
71. Tzafrii,,R , **M. Bercovier,M.** and Parnas ,H., "*Reaction Diffusion Model of the Enzymatic erosion of Insoluble Fibrillar Matrices*" Biophysical Journal , 83 : Aug 2002.
72. **Bercovier M.** and Goldenthal ,R. *Spline Curve Approximation and Design by Optimal Control Over the Knots* Computing, 72,53-64, (2004).
73. Rony Goldenthal, David Harmon, Raanan Fattal, **Michel Bercovier** and Eitan Grinspun *Efficient Simulation of Inextensible Cloth* ACM Transaction on Graphics (Proceedings of SIGGRAPH 2007)

Book : Domain Decomposition Methods in Science and Engineering 18, ,Editor, Wth M.J Gander, R Kornhubler and O Widlund, Springer,2008.

Conference proceedings :

1. Bercovier M., Hasbani Y., and Livne E., *Applications of the finite element method with a view to computer aided design*. Proc of the Nat Conf. On data proc. Jerusalem, 1975
2. Bercovier M., *Finite Elements for Incompressible or Nearly Incompressible Materials*. ADINA Conf. 1977, K.J. Bathe, ed. M.I.T. Report 82448-6
3. Wiener D., Levy A., Hasbani Y. and Bercovier M., *Stress Analysis of a Turbine Nozzle with a Single 2D. Model*, Proceedings, 22nd An. Is. Conf. On Av. And Astr., D. Abir ed., 1980
4. Bercovier M., Engelman M. and Fortin M., *A Finite Element Method for Bingham Fluid Flows*, 3rd Int. Conf. On FEM in Flow Problems, D.H. Norrie, ed., pp. 322-332, Banff, June 1980
5. Hasbani I., Livne E. and Bercovier M., *FEM and characteristics applied to Advection-Diffusion Equations*. Is. Conf. Of Soc. For the App. Of Mathematics, Rehovot, April 1981
6. Bercovier M., Engelman M. and Kaniel S., *Numerical Simulation of Newtonian and non Newtonian Viscous Incompressible Flows by a Finite Element Method*, Proceedings 2nd Intl. Conference on Computational Methods in non Linear Mechanics, T.J. Oden ed., Austin, 1979, p. 271
7. Sharaf M., Bercovier M., Guez D., *Interactive Simulation of a Forging Process for Blades*, Int. Conf. On Num. Methods, in Industrial Forming Processes, Swansea, U.C. of Swansea Pineridge press, 1983
8. Berold M., Bercovier M. and Ash M., *Integration of Design and Analysis : the Case of a Solid Modeler and a Large FEM Program*, Proc. Of 2nd ANSYS Conf., J. Swanson ed., April 1985, SASI, Houston, PA
9. Berold M. and Bercovier M., *Solving Design Problems by Integration of CAD and FEM Software*, Proc. Of IFIP WG2.5, 4th Conference on Problem Solving Environments for Scientific Computing, B. Ford ed., Springer 1986
10. Bercovier M., Brun JM., *Solid Modelling Based CAD Systems and Integration of FEM Modelling*. Invited lecture 1st World Conf. On Computational Mechanics. Austin, Texas, Sept. 1996
11. Rittel D., Roman I. and Bercovier M., *Cyclic Plastic Zone Characterization and its Relation to Fatigue Crack Growth*. Proc. 4th Intl. Conf. Num. Meth Fracture Mech. Austin, April 1987, pp. 627-640
12. Bercovier M. « Numerical algorithms for physical modeling in CAD ». SIAM world conf in Applied Maths, Washington DC, July 1991
13. Berold G., Bercovier M., *Integration of physical phenomena into CAD in Freeform Tools in CAD Systems*, J. Hoschek ed., B.G. Teubner, Stuttgart, 1991
14. Bercovier M., *Simulation des Processus de Fabrication par Ordinateur* in Proc. Of Strucom 91, Paris (11 p), ASI pub., Paris, 1991

15. Aharon S., Gallily T., Bercovier M., Spira ME. and Parnas H., *Reversal of the Spatial Ca²⁺ Gradients in the Soma of Cultured Aplysia Neurons : (2) Theoretical Analysis* in 1st European Conf. Of Maths Applied to Biology and Medicine, Wuerz publ. Winnipeg, 1992
16. Bercovier M., *CAE : Intelligent Material Processing, the New Challenge* Proc. MICAD 92, Gardan editor, Hermes, Paris, Hermes, Paris, 1992 (10 p).
17. Bercovier M., *The Brezzi Condition for FEM Stokes Flow Approximations : A purely algebraic problem*. 20 pages, Lecture Notes, WUA-CFD seminar, Chuo University, Tokyo, April 1993
18. Bercovier M., *Traveling Waves and Tire Numerical Simulations*. Invited lecture, 2nd ECMI conference, Kaiserslautern, Sept. 1994
19. Bercovier M., *Input to CFD Codes : The Challenge and the Problems of Mesh Generation*. 2nd WUA-CFD conf. In Basel, Proceedings, Muller et al editors, IHTF, Basel, May 1994
20. Volpin O. and Bercovier M : *Bezier Mesh Type Surfaces : Application to Manifold/Nonmanifold Surface Building/Editing*. Fifth IFIP WG5.2 Workshop on Geometric Modeling Computer-Aided Design, Airlie (USA), 5(1996).
21. Aharon S., Bercovier M., Parnas H., *Distributed Computation in Biological Simulations Using PVM*, 1996 PVM group conference, Santa-Fe, February 1996
22. Blacker TD., Sheffer E., Clements J., Bercovier M., *Virtual Topology Construction and Applications*, Geometric Modeling, Theory and Practice pp. 247-269, Springer Verlag, 1997
23. Sheffer A., Blacker T., Bercovier M., *Towards the solution of fundamental issues in CAD-FEM integration*, 8 p. Keynote lecture by M.B. Fourth World Congress on Computational Mechanics Buenos Aires (Argentina), 29 June – 2 July 1998 IACM – International Association of Computational Mechanics
24. N. Volfovsky, Bercovier M., *Parallel Domain Decomposition for Reaction-Diffusion Problems* [The Eleventh DD meeting in Greenwich, Great Britain](#) (July 20-24 1998)
25. With R Goldenthal *Spline Curve Approximation and Design by Optimal Control Over the Knots Using Genetic Algorithms*. Evolutionary Methods for Design, Optimization and Control, G.Budega, J-A Desideri et all editors. CIMNE , Barcelona.2003.
26. Muawyah Akash, Michel Bercovier, Ami Marowka, Elan Pavlov , *Towards Virtualization of On-Demand Web Service Composition Using An Improved Ranking Algorithm* , ISW04, Las Vegas , July 2004
27. Katerina Shechtman, Michel Bercovier, Yaniv Aziel,, *Matlab on Grid*, ECCOMAS 2004 , July 2004
27. Katerina Shechtman, Maxim Vainstein, and Michel Bercovier, *Matlab on Grid: A progress report*, Proc. Of The Cracov Grid Workshop 2005, M Bubak and all ed. Cyfronet Krakov, Poland .

Other publications :

- C1. Bercovier M., *On Monte Carlo methods, Markov Processes and Elliptic Partial Differential Equations*, May 1965. Séminaire d'application de l'analyse fonctionnelle à l'analyse numérique (J. Cea, J.L. Lions) de l'Institut Blaise Pascal, 60 pages

- C2.** Bercovier M., Maille M. (C.N.R.S. Paris) *Approximation numérique par des méthodes variationnelles des différences finies solutions d'un problème aux limites pour l'opérateur + 1*. June 1969 (Séminaire d'Analyse Numérique, Lions, Raviart, 50 pages)
- C3.** Bercovier M., Maille M., *Approximation d'un problème d'évolution x du premier ordre lié à l'opérateur par la méthode des pas fractionnaires*. Séminaire d'analyse numérique J.L. Lions – P. Raviart. January 1970
- C4.** Bercovier M., Carnet J., Paumier J.C., *Etude de l'approximation numérique des solutions d'une équation intégrale*. Rapport de recherche, DRME Université de Rouen, 70/710. June 1971
- C5.** Bercovier M., *Comparaison numérique de diverses hypothèses non linéaires en théorie des coques...* Rapport de recherche Kléber – Colombes. 0.052/838/MB/dm November 1972
- C6.** Bercovier M., *Problèmes non linéaires et codes généraux aux éléments finis*. February 1973. Rapport de recherche K.C. 0.052/821/MB/dd
- C7.** Bercovier M., *Formulation mathématique et résolution numérique d'un problème de contact*. Rapport de recherche. EMI2/05 Kléber-Colombes. May 1974
- C8.** Bercovier M., *Incompressibility and finite elements – Problems and Cures*. Rapport de recherche EM. 14.5 Kléber-Colombes. April 1975
- C9.** Bercovier M. *The link between first order mixed quadrilateral finite elements and finite differences schemes for solving Stokes stationary problem*. Hebrew University Center technical note 75/MB/2
- C10.** Bercovier M. and Engelman M., *A new finite element for the solution of viscous incompressible flows*, Séminaires IRIA, Analyse et contrôle de systèmes, IRIA publ. 1977
- C11.** Bercovier M., Engelman M. and Hasbani Y., *Thermal and Centrifugal Stresses in a Compressor Blade*. Report 101/78 ; for Beth Shemesh Engines, Hebrew University
- C12.** Bercovier M., Hasbani I. and Engelman M., *Stress distribution in an axisymmetric titanium plate with rubber mounting*, report 102/78, for the Desalination Engineering (Zakhlin process) Ltd., Hebrew University
- C13.** Hasbani Y. and Bercovier M., *Numerical Analysis by the FEM of the solution of a model describing the movements of the fresh-salt water interface in a coastal Aquifer*, Report 209/79, for the Ministry of Agriculture, Hebrew University
- C14.** Hasbani Y., Engelman M. and Bercovier M., *Thermal and Stress Analysis of a M2TL distributor at ignition*. Report 104/79, for Beth Shemesh Engines, The Hebrew University
- C15.** Tal Nir A., Bercovier M., *Implementation of the Multigrid Method « MLAT » in the Finite Element Method*. MODULEF (INRIA) report
- C16.** Bercovier M., Gilon Y., *Development of Finite Element for Non Linear Elasticity and Elasto Plastic Analysis*. School of Applied Science and Technology, The Hebrew University, Report 80/105
- C17.** Bercovier M., *LSD/FEM Version 2. Library for Software Development in the Finite Element Method*. Institute of Mathematics and Computer Science, Department of Computer Science, The Hebrew University, report 85-3, July 1985

- C18.** Schatzmann M., Bercovier M., *On Numerical Approximation of a Vibration Problem with Unilateral Constraints*. Ecole Polytechnique, CMA, Rapport 124, Feb. 1985
- C19.** Bercovier M., *Design of a Mesh Generator as a EUCLID Application*, Matra-Datavision report, Orsay, 1986
- C20.** Brun JM., Bercovier M., *Solid Modeling Based CAD Systems Lead to the Integration of Finite Element Modeling*. First Wld Conference on Computational Mechanics, Austin, Texas, Sept. 1986
- C21.** Berold M., Bercovier M., *Integration of CAD and Analysis by the FEM : Functionalities and software requirement*, Bercom report, Ramat-Gan, 1987
- C22.** Bercovier M., Rodgold A., *An Application of the Bernstein-Bezier technique to the Mixed Finite Element Method*. Leibniz Center in Computer Science, 34 pages, 92-4, Feb. 1992
- C23.** Bercovier M., Ash M., *A Mixed 3D Finite Element for Modeling Thick Plate Bending*. Leibniz Center in Computer Science, 40 pages, Feb. 1993 (note : extends results of ref. 28 above and include software).
- C24.** Bercovier M., Schlezinger A., *Random Methods for Creating Disjoint of Elements for Sparse Matrix-Vector Product*. Publications of the LAN, Université Pierre et Marie Curie, Paris, R 93024, oct. 1993
- C25.** Bercovier M., Schlezinger A., *Storage Schemes for Parallel Sparse Matrix-Vector Product*. Publications of the Leibniz Center in Computer Science, 30 pages, 94-13, May 1994
- C26.** Bercovier M., Ricou O., *Dimensional reduction of a Stokes flow using a polynomial approximation*. Publications of the Leibniz Center in Computer Science, 10 pages, 95-10, May 1995
- C27.** Marowka A., Bercovier M., *Framework for Constructing Parallel and Distributed Applications with Optimal Portability*. Publications of the Leibniz Center in Computer Science, 51 pages, CS96-1, February 1996
- C28.** Volfosky N., Bercovier M. and Parnas H., *A New Approach to Modeling Dendritic Spines*. 15 pages and figures, April 1996, Leibniz Center, CS 96-5
- C29.** [Michel Bercovier, Moshe Luzon, Elan Pavlov, *Reverse Engineering from Exact and Noisy Data of Objects Defined by Algebraic Surface Patches*](#) June 2003, Leibniz Report 2003-10
- C30.** [Yehuda Arav, Michel Bercovier, *Numerical simulation of elastic membrane - fluid interaction in a closed reservoir*](#) June 2003, Leibniz Report 2003-65
- C31.** [Yaniv Azriel, Michel Bercovier, *Hashing Schemes for Comparing and Synchronizing Distributed and Imperfectly Duplicated Data*](#) December 2003 Leibniz Report 2003-86
- C32.** Rony Goldenthal, Michel Bercovier [Design of Curves and Surfaces Using Multi-Objective Optimization](#) April 2005 Leibniz report 2005-12
- C33.** Maxim Vainstein, Katrin Shechtman, Michel Bercovier , *Matlab on Grid , a progress report*, May 2005 , Leibniz report 2005-24
- C34.** Zvi Goldberg Maxim Vainstein Michel Bercovier Distributed Web Based Computation (DWBC) Leibniz report May 2007
- C35.** Rony Goldenthal David Harmon Raanan Fattal Michel Bercovier Eitan Grinspun Efficient Simulation of Inextensible Cloth Leibniz report May 2007

- C36** Arie Jacobi Michel Bercovier Approximation and Construction of Composite Bezier Surfaces Using Minimization and Finite-Element Methods Leibniz report May 2007