Date: January, 2008

CURRICULUM VITAE AND LIST OF PUBLICATIONS

- **personal Details**

Erez Gal

Date and place of birth: 06.04.1969, Israel

Regular military service: 1987-1990

Address (O): Department of Structural Engineering
Faculty Engineering Sciences
Ben Gurion University of the Negev
Beer Sheva 84105
P.O.B. 653

Address (H): Habanim St. 10/31
Ashdod 77421
Israel

- **Education**

B.Sc. (Cum Laude) - 1990-1994 – Technion – Israel Institute of Technology – Faculty of Civil Engineering

M.Sc. C.E. - 1994-1998 - Technion – Faculty of Civil Engineering
Name of advisor: Prof. Robert Levy
Title of thesis: " Nonlinear Analysis of 3D Beam-Column of Varying Cross-Sections"

Ph.D. 1998-2002 - Technion – Faculty of Civil Engineering
Name of advisors: Prof. Robert Levy
Title of thesis: " Triangular Shell Element for Geometrically nonlinear Analysis "

- **Employment History**

03-present
Lecturer
Department of Structural Engineering
Faculty of Engineering Sciences
Ben-Gurion University of the Negev, Beer Sheva, Isrea

06-07
Associate Researcher
Department of Mechanical Engineering
RPI-Rensselear polytechnic Institute, Troy, NY, USA

03
Visiting Professor
Department of Civil Engineering
Arizona State University, Tempe, AZ, USA

02-03
Postdoctoral Fellow
Faculty of Engineering
Department of Structural Engineering
Ben-Gurion University of The Negev, Beer Sheva, Isrea

02
Adjunct Lecturer
Faculty of Civil Engineering
Technion - Israel Institute of Technology, Haifa, Isreal

02
Adjunct Lecturer
Civil Engineering Division
Department of Engineering
The College of Judea and Samaria, Ariel, Isreal

94 - 02
Teaching Assistant

Faculty of Civil Engineering

Technion - Israel Institute of Technology, Haifa, Isreal

94

Structural Design Engineer

Eidelman & Sons Ltd

Haifa, Isreal

- **Professional Activities**

<u>Membership in professional/scientific societies and boards</u>

06- Present

Editorial board member – The Open Civil Engineering Journal, Bentham Open.

07

Editorial board member – The Eleventh International Conference on Civil, Structural and Environmental Engineering Computing, Malta,18-21 September 2007.

02-Present

Member - IACMM -The Israeli Association for Computational Methods in Mechanics

02-Present

Member - IACM - International Association for Computational Mechanics

05-06

Member - EUROMECH - European Mechanics Society

05-present

Reviewer for the *International Journal of Structural Stability and Dynamics*

06-present

Reviewer for the *Computer Methods in Applied Mechanics and Engineering*

- **Educational Activities**

Courses taught

Statics of Structures 1 (37411081) – Undergraduate – BGU (03-07)

Statics of Structures 2 (37412020) – Undergraduate – BGU (03-07)

Dynamics of Structures (37412081) – Undergraduate – BGU (03-07)

Introduction to The Finite Element Method (37414101) – undergraduate - BGU (05)

The Finite Element Method- Advanced Topics (37414060) – undergraduate - BGU (05)

Structural Mechanics Lab- (37413021)-undergraduate - BGU (08)

Concrete Structural Lab- (37413031)-undergraduate - BGU (06-08)

Final Project in Mechanical Engineering (36214603) - BGU (04-05)

Final Project in Structural Engineering (37414053) - BGU (06-08)

Strength of Materials – undergraduate – Technion (02)

Engineering Mechanics – undergraduate – Sapir and YOSH College (02)

Presteressed Concrete – undergraduate – as a TA Technion (99-01)

Reinforced Concrete – undergraduate as a TA – Technion (97)

Steel structures (37412090) undergraduate as a TA - BGU (05)

Research students

In progress

2007 – Natalia Nemtzev – M.Sc. – Department of Mechanical Engineering, BGU. Expected Graduation - 2008

2006 – Roman Kriborok – M.Sc. – Department of Structural Engineering, BGU. Expected graduation – 2009.

- **Awards, Citations, Honors, Fellowships**

"Who's Who in Computation Science and Engineering"

2004 – Entry in the "Who's Who in Computation Science and Engineering", *Civil- Comp Press*, Galashiels.

"IACMM best Ph.D. thesis"

2003 – Selected by IACMM (Israel Association for Computational Methods in Mechanics) as a finalist in the ECCOMAS (European Community on Computational Methods in Applied Sciences) award for the best Ph.D. thesis

"Koret Post-Doc Fellowship"

2002 – Faculty of Engineering. BGU- Ben-Gurion University of the Negev

"Excellent Teaching Assistant award "

2000 – Faculty of Civil Engineering. Technion – Israel Institute of Technology

1999 – Faculty of Civil Engineering. Technion – Israel Institute of Technology

1998 – Faculty of Civil Engineering. Technion – Israel Institute of Technology

1997 – Faculty of Civil Engineering. Technion – Israel Institute of Technology

"Ph.D Fellowship"

2002 – Technion – I.I.T.

in recognition of excellence of doctoral dissertation granted annually for a graduate thesis in Civil Engineering.

"M.Sc. Fellowship"

1998 – Technion – I.I.T.

in recognition of excellence of Master thesis granted annually for a graduate thesis in Civil Engineering.

Engineering

"Dean Excellence Award"

1994 - Award of outstanding undergraduate studies, Faculty of Civil Engineering, Technion.

- **Scientific Publications**

Chapter in Books

1. Levy, R. and Gal, E. (2005) “Local Formulation for Geometrically Nonlinear Shell Elements based upon the Deformed Configuration”, Innovation in Civil and Structural Engineering Computing, B.H.V. Topping (editor), Saxe-Coburg publication, Chapter 5, pp.97-118.

Refereed articles in scientific journals

Published –

2. Gal, E. and Levy, R. (2006) “Geometrically Nonlinear Analysis Of Shell Structures Using A Flat Triangular Shell Finite Element”, Archives of Computational Methods in Engineering ARCME, 13, 331-388.

3. Levy, R. and Gal, E. (2006) “The Geometric Stiffness of Thick Shell Triangular Finite Elements For Large Rotations”, International Journal for Numerical methods in Engineering, 65, 1378-1402.

4. Gal, E. Levy, R. Abramovich, H. and Pevsner, P. (2006) “Buckling of Composite Stiffened Panels: Analysis and Experiment” ”, Composite Structures, 73, 179-185, 2006.

5. Schenker, A. Anteby, I. Nizri, E. Ostraich, B. Kivity, Y. Sadot, O. Haham, O. Michaelis, R. Gal, E. and Ben-Dor, G. (2005) “Foam-Protected RC Structures under Impact: Experimental and Numerical Studies”, ASCE Journal of Structural Engineering, 131(8), 1233-1242.

6. Sadot, O. Anteby, I. Harush, S. Levintant, O. Nizri, E. Ostraich, B. Schenker, A. Gal, E. Kivity Y. and Ben-Dor, G. (2005) “Experimental Investigation of the Dynamic Properties of Aluminum Foams”, ASCE Journal of Structural Engineering, 131(8), 1226-1232.

7. Gal, E. and Levy, R. (2005) “The Geometric Stiffness of Triangular Composite-Materials Shell Elements”, Computers and Structures, 83, 2318-2333.

8. Zelkha, M., Gal, E. and Levy, R. (2005) "Geometrically nonlinear finite element wrinkling analysis of pre-tensioned membranes", IACMM Newsletter, No. 14,

9. Levy, R. Lin, C. W., Gal, E. and Yang, Y-B. (2003) “Geometric Stiffness Of Space Frames Using Symbolic Algebra”, International Journal of Structural Stability and Dynamics, 3(3), 335-353.

10. Levy, R. and Gal, E. (2003) "Triangular Shell Element for Large Rotations Analysis", AIAA Journal, , 2(3), 2505-2508.

11. Levy, R. and Gal, E. (2002) "Three Dimensional Non Prismatic Beam-Columns", International Journal of Structural Stability and Dynamics, 2(3), 395-408.

12. Levy, R. and Gal, E. (2002) "Buckling and Stress Softening of Beam-Columns under Complex Three-Dimensional Loading", International Journal of Structural Stability and Dynamics, 2(4), 487-498.

13. Levy, R. and Gal, E. (2001) "Geometrically Nonlinear Analysis of Shells Using Triangular Flat Elements", Computers and Structures, 79, 2349-2355.

14. Schenker A., Anteby I., Gal E., Kivity Y., Nizri E., Sadot O., Basusa E., Michaelis R., Levintant O. Ben-Dor G., (2008) "Full Scale Field Tests of Concrete Slabs Subjected to Blast Loads" ", International Journal of Impact Engineering, , 35 (3), 184-198.

Accepted –

15. Gal E., Yuan Z., Wu W. and Fish J., "a multiscle design system for fatigue life prediction", International Journal for Multiscale Computational Engineering, in press 2007.

Published scientific reports

1. Kochavi E., Kivity Y., Gal E.**,** Antebi I, Sadot O. Vilnay O. Ornai D. and Ben-Dor G. (200**7)** "Concrete's properties for simulation", Ben-Gurion University of the Negev, Beer Sheva, Israel, July (in Hebrew).

Invited Lectures and Presentations at Meetings and Conferences not Followed by Published Proceedings

1. Gal E. (2007) "The Application of The Finite Element Methods in Engineering Science", The Mekorot Symposium on Development and working plans, Ashkelon (Mekotor), Israel.

2. Gal E. (2005) **"**Local Formulation in Deformed Configuration of Geometrically Nonlinear Shell Finite Elements", Anglo-Israel workshop, Haifa (Technion), Israel.

3. Gal, E. (2002) "Triangular Shell Element for Geometrically Nonlinear Analysis", Conference on Seismic Design (in Memory of Professor J. Gluck), Ariel (The College of Judea and Samaria), Israel.

Presentation of papers at conferences followed by full paper published proceedings

4. Gal E., Yuan Z., Wu W. and Fish J. (2007) "Fatigue Life Prediction Reduced Order (Mesoscale) Model For Composite Material" The Eleventh International Conference on Civil, Structural and Environmental Engineering Computing, St. Julians, Malta, 18-21 September.

5. Kochavi E., Kivity Y., Gal E. and Ben-Dor G. (2007) "Interaction of Explosive Blasts with Reinforced Concrete", The Eleventh International Conference on Civil, Structural and Environmental Engineering Computing, St. Julians, Malta, 18-21 September.

6. Gal, E. and Levy, R. (2005) "The performance of the Allman‘s membrane finite element for geometrically nonlinear analysis of shell structures", The Tenth International Conference on Civil, Structural and Environmental Engineering Computing, Rome, Italy.

7. Zelkha, M. Gal, E. and Levy R. (2005) "Geometrically Non-Linear Finite Element Wrinkling Analysis of Pretension Membrane", III European Conference on Computational Mechanics Solids, Structures and Coupled Problems in Engineering ,Lisbon, Portugal, 5–8 June.

8. Schenker A., Anteby I., Kivity, Y., Gal E., Sadot O., Basusa E., Michaelis R., Levintant R. and Ben-Dor G. (2004) ”Full Scale Field Tests of Concrete Slabs Subjected to Blast Loads”, MABS18, Bad Reichenhall, Germany.

9. Ben-Dor G., Sadot O., Anteby I., Britan A., Zaretsky E., Gal E. and Kivity Y. (2004) ”The BGU Protective Technologies Research and Development Center-Research Capabilities and Methodology”, MABS18, Bad Reichenhall, Germany.

10. Gal, E. and Levy, R. (2004) “The Geometric Stiffness of Thick Shell Triangular Finite Elements For Large Rotations”, The 44th Israel Annual Conference on Aerospace Sciences, Haifa, Isreal.

11. Gal, E. Levy, R. Abramovich, H. and Pevsner, P. (2004) “Buckling Analysis of Composite Panels”, The Second International Conference on Structural Engineering, Mechanics and Computation, Cape Town, South Africa.

12. Gal, E. and Levy, R. (2003) “Non-Linear Analysis of Composite Panels using a Triangular Shell Finite Element”, The Ninth International Conference on Civil and Structural Engineering Computing (CC2003), Egmond-aan-Zee, The Netherlands.

13. Ben-Dor, G. Sadot, O. Anteby, I. Britan, A. Zaretsky, E. Gal, E. & Kivity, Y. (2003) “The BGU Protective Technologies Research and Development Center - Research capabilities and methodology ”, DASPIL, Tokyo, Japan.

14. Schenker, A. Anteby, I. Kivity, Y. Gal, E. Nizri, E. Ostraich, B. Sadot O. Haham, O. Michaelis, R. & Ben-Dor, G., (2003) “Experimental and Numerical Investigation of the Behavior of Protected Concrete Beams and Slabs Under Short Duration Dynamic Loads”, DASPIL, Tokyo, Japan.

15. Anteby, I. Sadot, O. Haham, O. Sela, H. Kivity, Y. Gal, E. Nizri, E. Ostraich, B. Schenker, A. Michaelis, R. & Ben-Dor, G. (2003) “Dynamic Response of Steel Beams to Blast and Impact”, DASPIL, Tokyo, Japan.

16. Levy, R. and Gal, E. (2002) "Three-Noded Shell Finite Element for Large Rotations Analysis", WCCM V Fifth World Congress on Computational Mechanics, Vienna, Austria.

17. Levy, R. and Gal, E. (2000) "Three-Noded Triangular Finite Element Analysis of Geometrically Nonlinear Shells", IASS-IACM 2000 Fourth International Colloquium on Computation of Shell & Spatial Structures, Chania-Crete, Greece.

18. Levy, R. and Gal, E. (1999) "Buckling Of Beams Of Varying Cross Section Under Axial Compression And Biaxial Bending", The Third Euro-Conference on Parallel and Distributed Computing for Computational Mechanics, Weimar, Germany.

19. Levy, R. and Gal, E. (1999) "Geometrically Nonlinear Analysis of Shells", The Fifth International Conference on Computational Structures Technology, Oxford, U.K..

20. Levy, R. and Gal, E. (1998) "Three Dimensional Beam-Columns of Varying Cross Section", The Fourth International Conference on Computational Structures Technology, Edinburgh, Scotland.

Presentation of papers at conferences followed by abstract published proceedings

21. Gal E., Fish J. Yuan Z. and Wei W. (2007) "An adaptive fatigue life prediction model based on reduced order homogenization", The ninth U.S. National Congress on Computational Mechanics (USNCCM9), San Francisco, Ca., USA, July 23-26.

22. Gal E., Fish J. Yuan Z. and Wei W. (2007) "A Multiscle Design System For Fatigue Life Prediction", Congress of The Israeli Association for Computational Methods in Mechanics ISCM-17, Haifa, Israel, 2005.

23. Schenker A., Anteby I., Kivity, Y., Gal E., Sadot O., Basusa E., Michaelis R., Levintant R. and Ben-Dor G. (2005) ”Full Scale Field Tests of Concrete Slabs Subjected to Blast Loads”, The 30th Israeli Conference on Mechanical Engineering, Tel-Aviv, Israel.

24. Haham O., Anteby, I. Sadot, O. Kivity, Y Ostraich, B. Nizri, E. Schenker, A. Michaelis R., Gal E., and Ben-Dor G. (2005) ”Design and Calibration of a Mechanical Simulator fro Impact & Blast Waves Produced by Explosions”, The 30th Israeli Conference on Mechanical Engineering, Tel-Aviv, Israel.

25. Zelkha, M., Gal, E. and Levy, R. (2005) "Geometrically nonlinear finite element wrinkling analysis of pre-tensioned membranes", Congress of The Israeli Association for Computational Methods in Mechanics ISCM-17, Haifa, Israel.

26. Gal, E. Levy, R. Abramovich, H. and Pevsner, P. (2004) “Buckling of Composite Stiffened Panels: Analysis and Experiment”, International Conference on Buckling and Postbuckling Behavior of Composite Laminated Shell Structures, Eilat, Isreal.

27. Gal, E. and Levy, R. (2003) “Thick Shell Triangular Finite Element For Geometrically Nonlinear Analysis”, The 7th US congress on Computational Mechanics, Sandia, New-Mexico, USA.

28. Levy, R. and Gal, E. (2002) "Triangular Shell Element for Large Rotations Analysis", Congress of The Israeli Association for Computational Methods in Mechanics ISCM-12, Haifa, Israel.

29. Levy, R. and Gal, E. (2000) "The Geometric Stiffness Matrix in Shell Elements", The 28th Israel Conference On Mechanical Engineering, Beer-Sheva, Israel.

Seminar presentations at universities and institutions

1. Department of Civil, Structural and Environmental Engineering, University at Buffalo, NY, USA, 2007 “Fatigue Life Prediction Reduced Order (Mesoscale) Model for Composite Material”, Speaker: E Gal.

2. Department of Mechanical Engineering, Ben-Gurion University of the Negev, Beer Sheva, Israel, 2004 " The Geometric Stiffness Of Thin, Thick And Composite Shell Triangular Finite Elements For Large Rotations Analysis", Speaker: E Gal.

- **Research Grants**

2004 Ministry of Defense, Government of Israel.

Research Title: "Finite Element Simulation of Blasts"

Principal Investigator: Gabi Ben-Dor and E. Gal

Period of grant: 18 months- $21,000

2007 Israeli Defense Force.

Research Title: "Concrete's Properties for Finite Element Simulation"

Principal Investigator: Gabi Ben-Dor and E. Gal

Period of grant: 12 months- $22,000

- **Present Academic Activities**

Articles to be published

Submitted for publication

1. Gal E., Zelkha M. and Levy R. "A Simple Co-Rotational Geometrically Non-Linear Membrane Finite Element Wrinkling Analysis", submitted for possible publication in International Journal of Structural Stability and Dynamics.

In preparation

1. Gal, E. "Anisotropic Reduced Order Micro-Mechanical Creep Damage Model"
2. Gal, E. and Marianchik, E. "A Strict To the Point Student Self Performing Strength of Material Laboratory", *ASCE Journal*.
3. Levy R. and Gal E.," Geometrically Nonlinear 3D Frames and Shells", *International Journal of Space Structures*