

List of Publications

Doctoral Thesis:

J. Gerstmayr, *A solution strategy for elasto-plastic multibody systems and related problems*, Johannes Kepler University of Linz, May 2001, 124 pages.

Habilitation Thesis:

Absolute coordinate formulations for flexible multibody dynamics systems, Johannes Kepler University of Linz, March 2007, 146 pages.

Papers in Refereed Journals and Chapters in Books

1. J. Gerstmayr, H. Irschik. The elasto-plastic pendulum with geometric stiffening, *Zeitschrift für Angewandte Mathematik und Mechanik*, Vol. 81, Supplement 2, pp. 337 – 338, 2001.
2. H. Irschik, U. Pichler, J. Gerstmayr, H.J. Holl, Maysel's formula of thermoelasticity extended to anisotropic materials at finite strain, *International Journal of Solids and Structures*, Vol. 38, pp. 9479 – 9492, 2001.
3. J. Gerstmayr, H.J. Holl, and H. Irschik. Development of plasticity and damage in vibrating structural elements performing guided rigid-body motions, *Archives of Applied Mechanics* (formerly: *Ingenieur-Archiv*), Vol. 71, pp. 135 – 145, 2001.
4. J. Gerstmayr, H. Irschik. Vibrations of the elasto-plastic pendulum, *International Journal of Nonlinear Mechanics*, Vol. 38, pp. 111 – 122, 2003.
5. J. Gerstmayr. Modelling and simulation of elasto-plastic multibody systems with damage, *Journal of Mechanics Based Design of Structures and Machines*, Vol. 31, No. 2, pp. 201 – 227, 2003.
6. Y. Vetyukov, J. Gerstmayr, H. Irschik. Plastic multipliers as driving variables of numerical simulation in elastoplasticity, *Mechanics Research Communications*, Volume 30, No. 5, pp. 421 – 430, 2003.
7. J. Gerstmayr. Computational methods for elasto-plastic multibody systems, Chapter 7 of: *Selected Topics in Structronic and Mechatronic Systems*, A.K. Belyaev and A. Guran, eds., Series on Stability, Vibration and Control of Systems, Series B - Vol. 3, World Scientific New York, pp. 269 – 319, 2003 (book-chapter).
8. M. Dibold, J. Gerstmayr, H. Irschik. Biaxial vibrations of an elasto-plastic beam with a prescribed rigid-body rotation including the effect of stiffening, *International Journal of Nonlinear Dynamics*, Vol. 34, pp. 147 – 157, 2003.
9. J. Gerstmayr. Strain tensors in the absolute nodal coordinate and the floating frame of reference formulation, *International Journal of Nonlinear Dynamics*, Vol. 34, pp. 133 – 145, 2003.
10. J. Gerstmayr, M. Dibold, H. Irschik. Dynamik flexibler Mehrkörpersysteme unter Berücksichtigung hydraulischer Aktorik, *E&I*, Heft 9, pp. 307 – 312, 2004.
11. J. Gerstmayr, H. Irschik, M. Dibold. Computational dynamics of an elasto-plastic structural element with rigid-body degrees-of-freedom, Chapter 6 of: *Advanced Dynamics and Control of Structures and Machines*, H. Irschik, K. Schlacher, eds, CISM-Series Vol. 444, Springer-Verlag Wien New York, pp. 65 – 77, 2004 (book-chapter).
12. J. Gerstmayr. The absolute coordinate formulation with elasto-plastic deformations, *Journal of Multibody System Dynamics*, Vol. 12, pp. 363 – 383, 2004.
13. Y. Vetyukov, J. Gerstmayr, H. Irschik. The comparative analysis of the fully nonlinear and consistently linearized equations of motion of the 2D elastic pendulum, *Journal of Computers and Structures*, Vol. 82, pp. 863 – 870, 2004.
14. J. Gerstmayr and A.A. Shabana. Analysis of thin beams and cables using the absolute nodal coordinate formulation, *Journal of Nonlinear Dynamics*, Vol. 45 (1-2), pp. 109 – 130, 2006.

15. Y. Vetyukov, J. Gerstmayr, H. Irschik. Modeling spatial motion of 3D deformable multibody systems with nonlinearities, *Journal of Multibody System Dynamics*, Vol. 15, No. 1, pp. 67 – 84, 2006.
16. J. Gerstmayr, J. Schöberl. A 3D finite element method for flexible multibody systems, *Journal of Multibody System Dynamics*, Vol. 15, pp. 309 – 324, 2006.
17. H. Sugiyama, J. Gerstmayr, A. A. Shabana. Deformation modes of the finite element cross section, *Journal of Sound and Vibration*, Vol. 298, pp. 1129 – 1149, 2006.
18. J. Gerstmayr, M.K. Matikainen. Improvement of the accuracy of stress and strain in the absolute nodal coordinate formulation, *Mechanics Based Design of Structures and Machines*, Vol. 34, No. 4, pp. 409 – 430, 2006.
19. J. Gerstmayr. Nonlinear constraints in the absolute coordinate formulation, *Acta Mechanica*, Vol. 192, pp. 191-211, 2007.
20. J. Gerstmayr, J.A.C. Ambrósio. Component mode synthesis with constant mass and stiffness matrices applied to flexible multibody systems, *International Journal for Numerical Methods in Engineering*, available online. DOI: 10.1002/nme.2133

Accepted:

21. M. Stangl, J. Gerstmayr, H. Irschik. Two alternative approaches for the analysis of non-linear vibrations of pipes conveying fluid, *Journal of Sound and Vibration*, accepted.

Submitted:

22. M. Dibold, J. Gerstmayr, H. Irschik. A Detailed Comparison of the Absolute Nodal Coordinate and the Floating Frame of Reference Formulation in Deformable Multibody Systems, submitted to ASME Journal of Nonlinear and Computational Dynamics.
23. J. Gerstmayr, H. Irschik. On the correct representation of bending and axial deformation in the absolute nodal coordinate formulation with an elastic line approach, submitted to Journal of Sound and Vibration.

Papers in Conference Proceedings

24. A.K. Belyaev, E. Blumenschein, S. Blumenschein, J. Gerstmayr. Vibrational conductivity approach to vibration in a power plant subjected to aircraft impact, In: *Transactions of the 14th Int. Conf. On Struct. Mech. In Reactor Techn. (SMIRT 14)*, Lyon, France, pp. 331 – 338, 1997.
25. H.J. Holl, H. Irschik, U. Pichler, J. Gerstmayr. Maysel's formula in nonlinear structural mechanics. In: *Thermal Stresses 99*, J.J. Skrzypek and R.B. Hetnarski, eds., pp. 119 – 122, Society of Thermal Stresses, 1999.
26. J. Gerstmayr, H. Irschik. Dynamic analysis of machine elements exposed to plasticity and damage, In: *Symposium on Trends in the Application of Mathematics to Mechanics*, P.E. O'Donoghue, J.N. Flavin, eds., Elsevier Paris, pp. 86 – 92, 2000.
27. J. Gerstmayr. Computational methods for control of elasto-plastic structures with rigid-body degrees of freedom. In: *Proceedings of the summerschool on actual problems in mechanics (APM'2000)*, St. Petersburg, Russia, 2001, pp. 164 – 176.
28. J. Gerstmayr, H. Irschik. Control of an elasto-plastic pendulum, In: *Proceedings of DETC'01 ASME Design Engineering Technical Conferences*, Pittsburg, Pennsylvania, 2001 (CDROM). Printed version: American Society of Mechanical Engineers, Paper No. VIB-21600.
29. H. Irschik, J. Gerstmayr. Computational methods for elasto-plastic multibody dynamic systems, In: *Proceedings of the Fifth World Congress on Computational Mechanics (WCCM V)*, July 7-12, 2002, Vienna, Austria, Editors: Mang, H.A.; Rammerstorfer, F.G.; Eberhardsteiner, J., Publisher: Vienna University of Technology, Austria, ISBN 3-9501554-0-6, <http://wccm.tuwien.ac.at>
30. J. Gerstmayr, J. Schöberl. A 3D finite element approach to flexible multibody systems, In: *Proceedings of the Fifth World Congress on Computational Mechanics (WCCM V)*, July 7-12,

2002, Vienna, Austria, Editors: Mang, H.A.; Rammerstorfer, F.G.; Eberhardsteiner, J., Publisher: Vienna University of Technology, Austria, ISBN 3-9501554-0-6, <http://wccm.tuwien.ac.at>

31. J. Gerstmayr. Comparison of the absolute nodal coordinate and the floating frame of reference formulation by means of a simplified strain formulation, In: *Proceedings of DETC'03 ASME Design Engineering Technical Conferences*, Chicago, Illinois, 2003 (CDROM). Printed version: American Society of Mechanical Engineers, Paper No. VIB-48306.
32. M. Dibold, J. Gerstmayr, H. Irschik. Biaxial vibrations of an elasto-plastic beam with a prescribed rigid-body rotation, In: *Proceedings of DETC'03 ASME Design Engineering Technical Conferences*, Chicago, Illinois, 2003 (CDROM). Printed version: American Society of Mechanical Engineers, Paper No 48324.
33. J. Gerstmayr. The absolute nodal coordinate formulation with elasto-plastic deformations, In: *Proceedings of the Multibody Dynamics 2003 conference*, J.A.C. Ambrósio (Ed.), IDMEC/IST, Lisbon, Portugal, 2003 (CDROM).
34. J. Gerstmayr, J. Schöberl. A 3D Finite Element Solver for Multibody Systems Based on Implicit Runge-Kutta Schemes, In: *PAMM*, Vol. 3, No. 1, 2003, pp. 154 – 155.
35. M. Dibold, J. Gerstmayr, H. Irschik. Elasto-plastic deformation in the spherical pendulum, In: *PAMM*, Vol. 3, No. 1, 2003, pp. 150 – 151.
36. Yu. Vetyukov, J. Gerstmayr, H. Irschik. Fixed-point type iterations in numerical simulations for static and dynamic elasto-plasticity, In: *PAMM*, Vol. 3, No. 1, 2003, pp. 318 – 319.
37. Yu. Vetyukov, J. Gerstmayr, H. Irschik. Modeling of the complex motion of the elasto-plastic plate rotating around a hinge in its own plane, In: *Proceedings of the XXXI Summer School on Advanced Problems in Mechanics (APM 2003)*, St. Petersburg: IPME RAS, pp. 400 – 405, 2004.
38. J. Gerstmayr. The absolute coordinate formulation with reduced strain for the efficient simulation of flexible multibody systems with nonlinear constraints, In: *Proceedings of the ECCOMAS 2004*, P. Neittaanmäki, T. Rossi, S. Korotov, E. Oñate, J. Périaux, and D. Knörzer (eds.), Jyväskylä, Helsinki, 2004 (CDROM).
39. J. Gerstmayr, H. Irschik. The absolute coordinate formulation with reduced strain and stiffening, Extended summary at the XXI ICTAM conference, Warsaw, Poland, 2004.
40. M. Dibold, J. Gerstmayr, R. Stadlmayr, H. Irschik, K. Schlacher, Dynamics of multibody systems including hydraulic actuators and feedback control. In: *Proceedings of the 3rd European Conference on Structural Control (3ECSC)*, Vienna, Austria, Schriftenreihe der Technischen Universität Wien, pp. S1-39 – S1-42, 2004.
41. J. Gerstmayr, M. Stangl, H. Irschik. Optimal control parameters of flexible multibody systems with contact. In: *Proceedings of 3rd European Conference on Structural Control ECSC (3ECSC)*, Vienna, Austria, Schriftenreihe der Technischen Universität Wien, pp. S1-143 – S1-146, 2004.
42. J. Gerstmayr, M. Stangl. High-Order Implicit Runge-Kutta Methods for Discontinuous Multibody Systems, In: *Proceedings of the XXXII Summer School APM' 2004, June 24- July 1*, Editor D.A. Indeitsev, pp. 162-169, St. Petersburg, Russia, 2004.
43. J. Gerstmayr, A.A. Shabana. Analysis of higher and lower order elements for the absolute nodal coordinate formulation, In: *Proceedings of the ASME 5th International Conference on Multibody Systems, Nonlinear Dynamics, and Control*, paper number DETC2005-84827, ASME, New York 2005 (CDROM).
44. J. Gerstmayr, A.A. Shabana. Efficient integration of the elastic forces and thin three-dimensional beam elements in the absolute nodal coordinate formulation, *Multibody Dynamics 2005 - ECCOMAS Thematic Conference*, Goicolea, Cuadrado, García Orden (eds.), Madrid, Spain, 2005 (CDROM).
45. H. Sugiyama, J. Gerstmayr, A. A. Shabana. Cross section deformation in the absolute nodal coordinate formulation, In: *Proceedings of the ASME 5th International Conference on*

- Multibody Systems, Nonlinear Dynamics, and Control*, paper number DETC2005-84524, ASME, New York, 2005 (CDROM).
46. J. Gerstmayr, M.K. Matikainen. Analysis of stress and strain in the absolute nodal coordinate formulation with nonlinear material behavior, *III European Conference on Computational Mechanics – Solids, Structures and Coupled Problems in Engineering*, C.A. Mota Soares et al. (eds.), Lisbon, Portugal 2006 (CDROM).
 47. M. Dibold, J. Gerstmayr. Simulation of an elastic multibody system with hydraulics and control, In: *Proceedings of the 77th Annual Meeting of GAMM 2006*, Berlin, PAMM Vol.6, No. I, pp. 89 – 90, 2006.
 48. J. Gerstmayr. Component mode synthesis for multibody systems with absolute coordinates, In: *Proceedings of the 12th IFTOMM World Congress*, Besançon, June 18-21, 2007, Paper Number 817 (CD-ROM).
 49. J. Gerstmayr and W. Witteveen. Reduction methods for large-scale multibody systems, In: *Proceedings of the Multibody Dynamics 2007, ECCOMAS Thematic Conference*, C.L. Bottasso, P. Masarati, L. Trainelli (eds.), Milano, Italy, 25–28 June 2007 (CD-ROM).
 50. A.L. Schwab, J. Gerstmayr, and J. P. Meijaard. Comparison of Three-Dimensional Flexible Thin Plate Elements for Multibody Dynamic Analysis: Finite Element Formulation and Absolute Nodal Coordinate Formulation, In: *Proceedings of the ASME 2007 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference IDETC/CIE 2007*, Las Vegas, Nevada, USA, 2007. Paper No. DETC2007-34754.
 51. M. Dibold, J. Gerstmayr, H. Irschik. On the accuracy and computational costs of the absolute nodal coordinate and the floating frame of reference formulation in deformable multibody systems, In: *Proceedings of the ASME 2007 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference IDETC/CIE 2007*, Las Vegas, Nevada, USA, 2007. Paper No. DETC2007-34756.
 52. M. Stangl, J. Gerstmayr, H. Irschik. A large deformation finite element for pipes conveying fluid based on the absolute nodal coordinate formulation, In: *Proceedings of the ASME 2007 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference IDETC/CIE 2007*, Las Vegas, Nevada, USA, 2007. Paper No. DETC2007-34771.

Technical Reports (selected)

53. J. Gerstmayr, M. Dibold, H. Irschik, LCM Annual report 2001, PROJEKT 4.4 - Symbolic and Numerical Computation in the Dynamics and Control of Machines, Division of Technical Mechanics, Institute of Mechanics and Machine Design, University of Linz, 2002.
54. J. Gerstmayr, M. Dibold, H. Irschik, LCM Annual report 2002, PROJEKT 4.4 - Symbolic and Numerical Computation in the Dynamics and Control of Machines, Division of Technical Mechanics, Institute of Mechanics and Machine Design, University of Linz, 2003.
55. J. Gerstmayr, H. Irschik, U. Pichler, Technical Report on the Short Circuit Buckling of Transformer Coils, Division of Technical Mechanics, Institute of Mechanics and Machine Design, University of Linz, 2003.
56. J. Gerstmayr, H. Irschik, C. Zehetner, A. Brandl, Technical Report: Computational analysis of the clamping and the deformation due to an impact load in the core of the power transformer N5200101, Division of Technical Mechanics, Institute of Mechanics and Machine Design, University of Linz, 2003.
57. J. Gerstmayr, Analysis of the dynamics of historical monuments by means of flexible blocks with contact and friction, Scientific report for the ESF-program CONVIB (Innovative Control Technologies for Vibration Sensitive Civil Engineering Structures), National Technical University of Athens, Prof. C. Symakezis, ESF, 2003.

58. H. Sugiyama, J. Gerstmayr, A. A. Shabana, Deformation Modes of the Finite Element Cross Section, Technical Report # MBS05-2-UIC, Department of Mechanical Engineering, University of Illinois at Chicago, 2005.
59. J. Gerstmayr, A.A. Shabana, Analysis of Thin Beams and Cables Using the Absolute Nodal Coordinate Formulation, Technical Report #MBS05-3-UIC, Department of Mechanical Engineering, University of Illinois at Chicago, 2005.

Talks at International Conferences

1. J. Gerstmayr, H. Irschik. The elasto-plastic pendulum with geometric stiffening. Presentation at GAMM 2000 annual meeting, Göttingen, April 2000.
2. J. Gerstmayr. Computational methods for control of elasto-plastic structures with rigid-body degrees of freedom. Presentation at 28th Summer-school on Actual Problems in Mechanics (APM 2000), St. Petersburg, Russia, June 2000 (invited).
3. J. Gerstmayr, H. Irschik. Dynamic analysis of machine elements exposed to plasticity and damage. Invited Lecture at the Symposium on Trends in Applications of Mathematics to Mechanics (STAMM), Galway, Ireland, July 2000 (invited).
4. J. Gerstmayr, H. Irschik. Computational strategies for vibrating elasto-plastic structures with rigid-body DOFs. Poster Presentation at ICTAM 2000, Chicago, August 2000.
5. J. Gerstmayr, H. Irschik. Multibody Systems Exposed to Plasticity and Damage. Presentation at annual meeting GAMM, Zürich, February 2001
6. J. Gerstmayr. An Adaptive Method for Elastic-Plastic Multibody Systems with Damage, Euromech Colloquium 427, Paris, September 2001.
7. J. Gerstmayr, A 3D meshing algorithm for geometry defined by the stereo-lithography (STL) format, Presentation at the Mesh-Generation Minisymposium, annual GAMM meeting, March 2002 Augsburg, Germany (invited).
8. J. Gerstmayr, J. Schöberl, A 3D finite element approach to flexible multibody systems, WCCMV, July 2002, Vienna, Austria.
9. J. Gerstmayr, H. Irschik, J. Schöberl, Simulation of Elasto-Plastic Deformations in Multibody Systems, 12th-ECMI Conference (European Consortium for Mathematics in Industry), Sept. 2002, Jurmala, Latvia (invited).
10. J. Gerstmayr, H. Irschik, Plasticity and Damage in Multibody Dynamic Systems, 12th International Workshop on Computational Mechanics of Materials, Sept. 2002, Darmstadt, Germany.
11. J. Gerstmayr. Elasto-Plastische Mehrkörpersysteme, 23. Bayerisch-Tirolerisches Mechanik-Kolloquium, Linz, Austria, Juni 2002 (invited).
12. J. Gerstmayr, J. Schöberl, A 3D Finite Element Solver for Multibody Systems Based on Implicit Runge-Kutta Schemes, GAMM 2003, March 2003, Abano Terme, Italy.
13. J. Gerstmayr, The absolute nodal coordinate formulation with elasto-plastic deformations, Multibody Dynamics 2003, July 1-4, 2003, Lisbon, Portugal.
14. J. Gerstmayr, Comparison of the Absolute Nodal Coordinate (ANC) and the Floating Frame of Reference (FFR) Formulation by Means of a Simplified Strain Formulation, ASME International 19th Biennial Conference on Mechanical Vibration and Noise (VIB), 2.-6. September 2003, Chicago, IL.
15. J. Gerstmayr, M. Stangl, M. Dibold, High-Order Implicit Runge-Kutta Methods for Discontinuous Multibody Systems, Euromech 452, Halle, March 2004 (invited).
16. J. Gerstmayr, Efficient application of implicit Runge Kutta methods for flexible multibody dynamic systems, ECMI 2004, Eindhoven, June 2004 (invited).
17. J. Gerstmayr, The Absolute Coordinate Formulation with Reduced Strain for the Efficient Simulation of Flexible Multibody Systems with Nonlinear Constraints, ECCOMAS Conference, Jyväskylä, Finland, July 2004.
18. J. Gerstmayr, H. Irschik The Absolute Coordinate Formulation with Reduced Strain and Stiffening, ICTAM 2004, Warsaw, August 2004.
19. J. Gerstmayr, An Implicit Runge Kutta Solver adapted to Flexible Multibody System Simulation, 7. Workshop über Deskriptorsysteme, 15. - 18. March 2005, Liborinum, Paderborn, Germany.
20. J. Gerstmayr, Bridging the Gap Between Multibody Systems and Finite Elements, ASCINA 2005, Vienna, Austria, 27th - 29th April, 2005.

21. J. Gerstmayr, A.A. Shabana, Efficient integration of the elastic forces and thin three-dimensional beam elements in the absolute nodal coordinate formulation, Multibody Dynamics 2005, ECCOMAS Thematic conference, Madrid, Spain, June 2005.
22. J. Gerstmayr, A.A. Shabana, Analysis of Lower and Higher Order Elements for the Absolute Nodal Coordinate Formulation, ASME 2005 International Design Engineering Technical Conferences & Computers And Information In Engineering Conference, Long Beach, CA, USA, Sept. 2005.
23. J. Gerstmayr, Improved convergence in the absolute nodal coordinate formulation, 77th Meeting of the Gesellschaft für Angewandte Mathematik und Mechanik (GAMM), 27th – 31st March 2006.
24. J. Gerstmayr, M. K. Matikainen, Analysis of stress and strain in the absolute nodal coordinate formulation with nonlinear material behavior, 3rd European Conference on Computational Mechanics (ECCM 2006), Laboratório Nacional de Engenharia Civil, Lisbon, Portugal, 2006.
25. J. Gerstmayr, Component Mode Synthesis for Multibody Systems with Absolute Coordinates, The 12th World Congress in Mechanism and Machine Science (IFTOMM2007), Besancon, France, 17 -21 June 2007.
26. J. Gerstmayr and W. Witteveen, Reduction Methods for Large-Scale Multibody Systems, Multibody Dynamics 2007 - ECCOMAS Thematic Conference, Politecnico di Milano, Milano, Italy, 25-28 June 2007.
27. J. Gerstmayr, M. Dibold, H. Irschik, On the accuracy and computational costs of the absolute nodal coordinate and the floating frame of reference formulation in deformable multibody systems, ASME 2007 Design Engineering Technical Conference and Computers and Information in Engineering Conference, Las Vegas, Nevada, 4 – 7 September 2007.

Selected invited talks at national and international meetings/seminars:

1. J. Gerstmayr, H. Irschik, Mehrkörpersimulation unter Berücksichtigung von Plastizität und Schädigung, Steyrer Technologie-Abend, Steyr, 25. Juni 2001 (invited by Engineering Center Steyr (ECS) in Steyr / Austria).
2. J. Gerstmayr, The absolute nodal coordinate formulation with elasto-plastic deformations, Dynamic simulation lab (invited by Prof. Shabana), University of Illinois in Chicago (UIC), 7. Sept. 2003.
3. J. Gerstmayr, Flexible Multibody Systems, Helsinki University of Technology, Institute of Mathematics, 21. October 2003 (invited by Prof. R. Stenberg).
4. J. Gerstmayr, Flexible Multibody Systems, Lappeenranta University of Technology, Institute of Mechatronics and Virtual Engineering, Finland, 22. Oct. 2003 (invited by Prof. A. Mikkola).
5. J. Gerstmayr, Flexible Multibody Systems with Discontinuities and Control, Gdansk, December 10th, 2003.
6. J. Gerstmayr, Implicit Time-Integration Methods, University of Illinois at Chicago, Dept. Mech. Engrg., December 17th, 2004.
7. J. Gerstmayr, Flexible Mehrkörpersysteme mit großen Deformationen, LCM Workshop Dynamik und Regelung von Maschinen und Strukturen, Altes Rathaus Linz, Juni 2005.
8. J. Gerstmayr, Large Scale Simulation of Flexible Multibody Systems, Johann Radon Institute For Computational And Applied Mathematics (RICAM), Linz, Austria, Nov. 3rd, 2005.
9. J. Gerstmayr, The absolute nodal coordinate formulation and large scale multibody systems, IDMEC, Instituto Superior Tecnico, Lisbon, Feb. 14th, 2006.
10. J. Gerstmayr, Dynamics of Flexible Multibody Systems with Non-classical Constraints, Stipendiatenwochenende 2006, Austrian Academy of Sciences, Vienna, March 31st, 2006.
11. J. Gerstmayr, A new approach for the component mode synthesis method in multibody system dynamics based on constant mass and stiffness matrices, Linz Center of Competence in Mechatronics, July 4th, 2006.

12. J. Gerstmayr, Advanced methods for large-scale flexible multibody systems, Delft University of Technology, Mechanics Colloquium, Nov. 27, 2006 (invited by Prof. A. Schwab).
13. J. Gerstmayr, Flexible Mehrkörpersysteme - Ein Auszug aus der aktuellen Forschung, TechnoLog 07, 13. März 2007, Ars Electronica Center, Linz (invited by the „Wirtschaftskammer Oberösterreich“)
14. J. Gerstmayr, Flexible multibody systems based on absolute coordinates, CCES Seminar Series in Summer Semester 2007, RWTH Aachen, CATS, April 23, 2007 (invited by Prof. J. Schöberl).
15. J. Gerstmayr, Large deformation formulations in multibody dynamics, Lappeenranta University of Technology, Finland, Nov. 5, 2007 (invited by Prof. A. Mikkola).

Organization of Mini-symposia and Chairman at International Conferences

- Co-Chairman, Session VIB-01 “Multibody System Dynamics”, ASME International 19th Biennial Conference on Mechanical Vibration and Noise (VIB), 2.-6. September 2003, Chicago, Illinois, USA.
- Co-Organization of Minisymposium “Finite Element Formulations” (lateron included in Symposium “Flexible Multibody System”), ASME 2005 International Design Engineering Technical Conferences & Computers And Information In Engineering Conference, Long Beach, CA, USA, Sept. 2005.
- Co-Chairman, Session E3 “Nonlinear Dynamics of Moving Structures”, 3rd European Conference on Computational Mechanics (ECCM 2006), Laboratório Nacional de Engenharia Civil, Lisbon, Portugal, 2006.
- Co-Chairman, Session “Flexible Multibody Dynamics”, ASME 2007 Design Engineering Technical Conference and Computers and Information in Engineering Conference, Las Vegas, Nevada, 4 – 7 September 2007.

Activities as Reviewer

Journals:

- ASME Journal of Computational and Nonlinear Dynamics
- Engineering Structures
- Journal of Multibody System Dynamics (frequently)
- Nonlinear Dynamics
- Mathematics and Computers in Simulation
- Aerospace Science and Technology
- Acta Mechanica
- Journal of Simulation Modelling Practice and Theory

Other:

- Review coordinator for parts of the ASME 2005 International Design Engineering Technical Conferences & Computers And Information In Engineering Conference.
- Reviewer of Doctoral Thesis: Kari Dufva, “Development of finite elements for large deformation analysis of multibody systems”, Lappeenranta University of Technology, Finland, February 2006.
- Reviewer of several papers submitted to the IFToMM Conference 2007, Besancon, France

Co-Supervision of Diploma and Doctoral Theses

- Markus Dibold, diploma thesis, „Eine Studie zur computerunterstützten Berechnung räumlicher Bewegungen inelastischer Maschinenteile“, September 2002.
- Stangl Michael, diploma thesis, „Symbolische und numerische Methoden in der Simulation von Mehrkörpersystemen“, April 2004.
- Markus Dibold, doctoral thesis, „Flexible Mehrkörpersysteme mit hydraulischen Aktuatoren“, in preparation.
- Michael Stangl, doctoral thesis, “Deformable Pipes with Internal Flow of Fluid and Rigid Body Degrees of Freedom”, January 2008.