

# O.UNIV.-PROF. DIPL.-ING. DR.TECHN. DR.HC. HANS IRSCHIK

Head, Institute of Technical Mechanics, Mechatronics Group  
Johannes Kepler University Linz, Austria  
A-4040 Linz, Auhof

## A: Curriculum Vitae

23. 8. 1951 Born in Vienna, Austria, as son of the architect Hans Irschik sen. and his wife Mathilde, nee Friedrich. Brother Andreas, born 1957
- 1957 - 1961 Primary School, Wien VI, Gumpendorferstraße
- 1961 - 1969 Gymnasium, Wien V, Rainergasse
- 1969 - 1970 Military Service
- 1970 - 1977 Studied Civil Engineering at Vienna University of Technology (TU-Wien)
- 1970 - 1977 Worked as structural engineer in father's bureau
- 1977-1991 "Universitätsassistent" at the Institute of Rational Mechanics, TU-Wien (Head: o.Univ.-Prof. Dr. Franz Ziegler)
- since 1978 Married with Gertraud, nee Bauer. Three children: Dipl.-Ing. Elisabeth Irschik, born 1979, Mag. Johannes Irschik, born 1980, Mag. Katharina Irschik, born 1986
29. 6. 1981 Promotion to "Doctor of Technical Sciences", TU-Wien (Titel of Dissertation: „Anwendung der Methode der Green'schen Funktionen auf die Berechnung dünner, elastischer Platten mittels Randintegralgleichungen“; with Distinction)
12. 3. 1986 Habilitation to "Universitätsdozent" for the field "Mechanics", TU-Wien (Habilitation Thesis: "Ein Beitrag zur quasistatischen und dynamischen Berechnung inelastischer Tragwerke")
25. 11. 1988 Award of the City of Vienna for Technical Sciences (Förderungspreis der Stadt Wien für Technische Wissenschaften)
6. 12. 1988 Kardinal Innitzer-Förderungspreis für Naturwissenschaften
1. Mai 1991 Appointed as Full Professor of Technical Mechanics, Johannes-Kepler-Universität Linz (JKU Linz), Austria. Founding Professor of the new Mechatronics diploma-curriculum at JKU Linz
- 1991-2004 Head, Department of Technical Mechanics at Institute for "Mechanik und Maschinenlehre", JKU Linz
- 1994-1996 Head, Institute for "Technische Mechanik und Grundlagen der Maschinenlehre", JKU Linz
- 1994-1996 Delegate of JKU Linz in the Austrian Federal Conference of University Professors ("Öst. Bundesprofessorenkonferenz")
- 1995-2001 Vice-Rector for Research, JKU Linz; Member of the Austrian Federal Conference of University Rectors
- 2001-2003 Delegate of JKU Linz in the Austrian Federal Conference of University Professors ("Öst. Bundesprofessorenkonferenz")
- since 2004 Head, Institute of Technical Mechanics, JKU Linz
- 2006 Fellow, Japanese Society for the Promotion of Science (JSPS)

2007-2011	Corresponding Member of Austrian Academy of Sciences (“Österreichischen Akademie der Wissenschaften”, ÖAW)
2008-2011	Delegate of the Corresponding Members of ÖAW in the General Assembly of ÖAW
2009	Honorary Doctor of the St. Petersburg State Polytechnic University (StPSPU), St. Petersburg, Russia
2009 - 2013	Chair of the Senate, JKU Linz
since 2011	Full Member of Austrian Academy of Sciences (ÖAW)
2014	Visiting Professor, StPSPU, St. Petersburg, Russia
since 2015	Member of The Academy of Europe
since 2016	Foreign Member of the Russian Academy of Sciences

## **B: Work for Research Funding Organizations**

since 1995	Member of the scientific Senate of the Christian-Doppler-Forschungsgesellschaft (CDG)
1998-2001	Member of the Austrian UNESCO-Commission
since 1998	Member of the Austrian IIASA-Kommission
1998-2005	Member of the Advisory Board of “Ö. Sparkassenforschungsinstitut”
1999-2000	Member in the Temporary Research Commission of the Austrian Conference of University Rectors (“Forschungskommission der öst. Rektorenkonferenz”)
since 2000	Member in the Advisory Board of the OÖIAV (“Ingenieur- und ArchitektenVerein, Sektion OÖ”)
since 2000	Member of the Board of the European Association of Structural Control and Health Monitoring (EASC)
2001-2005	Austrian Member in the Steering-Committee of the Programme CONVIB of the European Science Foundation (ESF)
2002-2003	Austrian Member of Joint ESF-NSF Initiatives "Sensor Technology" and "Advancing Technological Frontiers for Feasibility of Ageless Structures"
2002-2014	Member of the Council for Research and Technology of the Upper Austrian Government (“Oberösterreichische Landesregierung“)
2002-2007	Member of Advisory Board of the Mechatronics-Cluster of the TMG
since 2003	Member of Scientific Advisory Board of the Erwin Wenzl Award
2003-2010	Member of the Solid-Mechanics-Conference-Committee of EUROMECH
2005-2008	Co-Referent for Engineering Sciences in the Board of the Austrian Science Fund (“Kuratorium des Österreichischen Fonds zur Förderung der wissenschaftlichen Forschung”, FWF)
2006-2009	Member of the Advisory Board of the Mechatronics Award (MEC)
2008-2012	President, European Association of Structural Control (EASC)
2008-2010	Referent for Engineering Sciences in the Board of the FWF
2010-2014	Co-Referent for Engineering Sciences in the Board of the FWF

2011-2017	Member of the Advisory Board of the Austrian Academy of Science for the promotion of excellent young scholars (APART, DOC, MAX KADE projects of the ÖAW)
since 2017	Chair and Vice-President of the Senate of the Christian Doppler Forschungsgesellschaft CDG

## C: Funded Research Projects

1993-1996	Co-Project Leader, FWF-Projects P09533-TEC, M095-TEC: "Mikromechanics of Dynamic processes in the Theory of Visco-Plasticity" (together with F. Ziegler, TU-Wien)
1997-1999	Project Leader in FWF-Project P11993-TEC: "Mechanics of Smart Structures"
1998	Project Leader in the FFG-Pilot-project "Center of Competence in Mechatronics": "Gleitlageruntersuchungen und Untersuchungen von Eckenformmaschinen mittels mechatronischer Konzepte"
1998-2001	Project Leader in the FWF-Special Research Area SFB-013: "Symbolic and Numeric Scientific Computations"; Project SFB01311: "Structural Dynamics of Elasto-Plastic Multi-Body Systems"
2001-2004	Project Leader in the FWF-Project P11993-TEC: "3D-Dynamics of Elastoplastic Robots" (together with H. Bremer, JKU Linz)
2001-2004	Project Leader in FWF-Project P11993-TEC: "Vibrations of Bridges with Variable Mass"
2001-2007	Area-Coordinator (Area "Dynamics and Control in Advanced Mechanical Systems, DYNACON") of the FFG-K+ Kompetenzzentrum "Linz Competence Center in Mechatronics (LCM)"; Project Leader in four projects of LCM: <ul style="list-style-type: none"> <li>- "Application of specially shaped sensors and actuators in devices of lightweight structures" (Partner: Siemens AG, Zentrale Technik, München, D),</li> <li>- "New design of complete systems and machines for processing thin sheet metal" (Partner: Salvagnini GmbH, Ennsdorf),</li> <li>- "High quality dynamic simulation models of wheel suspensions using MBS-Software ADAMS and ADAMS/MATLAB interface" (Partner: Engineering Center Steyr, Magna-Steyr)</li> <li>- Strategic Project: "Combination of Symbolic and Numerical Computations in the Dynamics and Control of Machines (MBD-Analysis, FE-Computations and MATLAB/SIMULINK Computations)"</li> </ul>
2001-2005	Austrian Coordinator in the European Project CONVIB ("Control of Vibrations of Sensitive Civil Engineering Structures") of the European Science Foundation (ESF)
2004-2006	Coordinator und Project-Leader of the EU-RIO-Project "Structural Control"
2008-2009	Area-Coordinator "Mechanics and Model Based Control" (together with H. Bremer und K. Schlacher) in the FFG-K2-„Austrian Center of Competence in Mechatronics“ (ACCM)

since 2008	Key-Researcher in several Multi-Firm-Projects and Strategic Research Projects of the ACCM
2009 - 2013	Co-Project Leader in the international FWF-Project: I 337-N18: "Dynamic Response of Nonlinear Problems with Large Rotations" (together with J. Gerstmayr, Austria, and Y.B. Yang, Taiwan)
since 2015	Co-Projekt Leader in the international FWF-Project: I 2093-N25: "Eulerian Mechanics of Belts" (together with A.K. Belyaev, Russia)

## **D: Organisation Symposia and Conferences**

1995	Organisation of the Special Session "Nonlinear Problems", 10th European Conf. Earthquake Eng., Vienna, 1995
1996	Co-organisation of the Minisymposium "Homogenisation" (together with W. Jäger, Germany), GAMM-Tagung, Prague
1997	Co-organisation of the "Festkolloquium dedicated to Franz Ziegler on the occasion of his 60th birthday" (together with Rudolf Heuer, Franz G. Rammerstorfer), TU Wien, Austria
1998	Organisation of Symposium "Mechanics of Smart Structures", 35th Annual Meeting of the Society of Engineering Sciences, Pullmann, WA
1999	Session - Organisation of the Symposium "Mathematics and Control in Smart Structures" SPIE 6th International Symposium on Smart Structures and Materials, Newport Beach, CA
1999	Organisation of the Symposium "Coupled Field Problems in Smart Structures", ASME Mechanics and Materials Conference, Blacksburg, VA
1999	Organisation of the Minisymposium "Hyperbolic Equations with Source Terms", GAMM-Tagung, Metz, France
2002	Co-organisation of the Mini-Symposium "Mechatronics and Structronics" (together with A.K. Belyaev), XXX International Summer School - Conference "Advanced Problems in Mechanics", Russian Academy of Sciences, St. Petersburg, Russia
2002	Organisation of the Symposium "Smart Materials", 3rd World Congress on Structural Control, Como, Italy
2002	Co-Organisation of the CISM-Course "Advanced Dynamics and Control of Structures and Machines" (together with K. Schlacher), International Center for Mechanical Sciences (CISM), Udine, Italy
2002	Organisation of the "Bayerisch-Tirolerischen Mechanik Kolloquium", JKU Linz, Austria
2003	Organisation of the Special Session "Vibrations and Dynamic Stability of Plates and Shells",

- Fifth International Congress on Thermal Stresses and Related Topics (TS03), Blacksburg, VA
- 2004 Co-President, "Third European Conference on Structural Control (3ECSC)" (together R. Flesch, Austria, F. Bourquin, France), Vienna, Austria
- 2004 Organisation of the INTAS-Symposium "Advanced Dynamical Modeling in Structural Control" (together with A.K. Belyaev, Russia, M. Krommer, Austria)
- 2004 Co-organisation of the Mini-Symposium "Mechatronics" (together with A.K. Belyaev),
- XXXII International Summer School - Conference "Advanced Problems in Mechanics", Russian Academy of Sciences, St. Petersburg, Russia
- 2005 Chair of the Section "Lineare und Nichtlineare Schwingungen",  
GAMM-Tagung, Luxemburg, 2005
- 2006 Organisation of the Symposium "Structural Control",  
5th MATHMOD Vienna, 5th Vienna International Conference on Mathematical Modelling, Vienna University of Technology, Vienna, Austria
- 2006 Organisation of the Special Session "Placement of smart sensors and actuators for structural control", 4th World Conference on Structural Control and Monitoring (4WCSCM), San Diego, CA
- 2008 Co-Chair of the Section "Coupled Problems" (together with Ch. Wieners, Germany),  
GAMM-Tagung, Bremen, 2008
- 2008 Co-President, 4th European Conference on Structural Control (together with A.K. Belyaev, D. Indeitsev), St. Petersburg, Russia
- 2008 Co-Chairman of the Japan-Austrian Workshop on "Mechanics and Control of Advanced Materials and Structures" (together with K. Watanabe, Japan), Linz, Austria
- 2010 Member of the "Programmkomitee GAMM-Tagung Karlsruhe", Germany
- 2010 Co-Chairman, Russia-Austrian Workshop on "Mechanics and Model-Based Control of Structures and Machines" (together with A.K. Belyaev, Russia), Linz, Austria
- 2010 Organisation of the Special Session "Smart Structure Theories Motivated by Continuum Physics Formulations",  
CST2010, Tenth International Conference on Computational Structures Technology, Valencia, Spain
- 2011 Member of the "Programmkomitee GAMM-Tagung Graz", Austria
- 2012 Co-Organisation of the CISM-Course "Dynamics of Mechanical Systems with Variable Mass" (together with A.K. Belyaev), International Center for Mechanical Sciences (CISM), Udine, Italy
- 2013 Co-Chairman of the 1. International Workshop on "Mechanics and Model-Based Control of Structures and Machines" (together with A.K. Belyaev, Russia, M. Krommer, Austria), Linz, Austria
- 2015 Co-Chairman of the 2nd International Workshop on "Mechanics and Model-Based Control of Structures and Machines" (together with A.K. Belyaev, Russia, M. Krommer, Austria), Vienna, Austria

## **E: Scientific Journals**

### **Editor-in-Chief:**

Acta Mechanica (Springer-Verlag, Wien-New York)

### **Member of Editorial Advisory Board:**

Journal of Structural Control and Health Monitoring, Int. Journal of Stability and Dynamics, Smart Structures and Systems, Asian Journal of Civil Engineering, Mechanics and Control, Journal of Mechanics of Advanced Materials and Modern Processes, Humanities and Science University Journal

### **Reviewer for other Journals:**

Int. Journal of Solids and Structures, ASME Journal of Applied Mechanics, Smart Materials and Structures, Journal of Dynamics and Control, European Journal of Mechanics, Engineering Structures, AIAA-Journal, Archives of Applied Mechanics, ZAMM, etc.

## **F: Membership in Professional Societies**

ASME, AIAA, SPIE, GAMM, EUROMECH, ISIMM, EASC, OIAV

## **G: Brief Description of Scientific Interests and Activities**

Hans Irschik is the author or co-author of about 370 scientific publications in a wide field of theoretical and applied mechanics with special emphasis placed on the interdisciplinary coupling to mathematics, physics and control. His interests concern plates and shells, plasticity and viscoplasticity, linear and non-linear vibrations and waves, earthquake engineering, thermal stresses, computational and probabilistic methods of structural mechanics, smart and intelligent structures, structural control and health monitoring, as well as mechatronics. He is also active in the fields of variable-mass and multi-body dynamic systems, in biomechanics and in configurational mechanics. Hans Irschik is very much interested in the promotion of inter-disciplinarity and internationality in research, as well as in the interactions of fundamental and applied sciences with the society. Since 1994, he is a member of the Senate of the Austrian "Christian Doppler Research Fund", which is devoted to excellence in applied science, he served as Vice-Rector for Research and Chair of the Senate of his university, and he worked as Referent for Engineering Sciences of the Austrian Science Fund FWF, which is devoted to fundamental sciences. He has been the scientific head of several FWF-projects. Since 2000, he is active as a key researcher in the peer-reviewed and interdisciplinary "Linz Center of Competence in Mechatronics". He has organized a large number of special topic, as well as interdisciplinary symposia at international conferences, among them ASME, SPIE and GAMM Conferences, he can refer to various research stays abroad, e.g. as a Fellow of the Japanese Society for the Promotion of Sciences, where he visited nine Japanese Universities. At the European level, among other activities he was the Austrian member of the interdisciplinary ESF-network CONVIB, he was member of joint ESF-NSF research initiatives, he was active for EUROMECH, he chaired two European Conferences on Structural Control, he served as President of the European Association for Structural Control, and he organized two successful Courses at the International Center for Mechanical Sciences (CISM) in Udine, Italy. He is member of the Advisory Board of several scientific journals. Since 2006, he is serving as Managing Editor and Editor-in-Chief of Acta

Mechanica. Hans Irschik is a Full Member of the Austrian Academy of Sciences and a Honorary Doctor of the St. Petersburg Polytechnic State University.