

CURRICULUM VITAE

Prof. DI Dr. Michael Krommer
as at February 2020



Head, Institute of Technical Mechanics
Johannes Kepler University Linz
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Austrian citizen
Languages: German (mother tongue) and English (fluent)

Born in Linz, Austria

February, 20th, 1971

Married to Kimberly Lydia Krommer (4 children)

April, 3rd, 2003

1 Academic education

- **Habilitation in Technical Mechanics** *January, 2007*
Johannes Kepler University (JKU) Linz
- **Ph.D. in Technical Sciences** *April, 2001*
JKU Linz, (with honors)
- **Master of Engineering in Mechatronics** *November, 1996*
JKU Linz, (with honors)

2 Professional career

- **Professor for Technical Mechanics** *2020 to present*
Institute of Technical Mechanics and Mechatronics, JKU Linz
- **Professor for Mechanics of Solids** *2014 to 2019*
Research group for Mechanics of Solids, Institute of Mechanics and Mechatronics, TU Wien
- **Associate Professor** *2011 to 2014*
Institute of Technical Mechanics, JKU Linz
- **Area coordinator & adjunct key researcher** *2009-10 to 2014*
K2 Austrian Center of Competence in Mechatronics - Area 2: Mechanics and Model Based Control
- **Adjunct senior researcher** *2003 to 2009-9*
KPlus Linz Center of Competence in Mechatronics *2003 to 2008-8*
K2 Austrian Center of Competence in Mechatronics *2008-9 to 2009-9*
- **University assistant** *2000 to 2011*
Institute of Technical Mechanics, JKU Linz
- **Lecturer** *1998 to 2000*
Lecture *Selected Topics in Strength of Materials*, Institute of Technical Mechanics, JKU Linz
- **Research assistant** *1997 to 1999*
FWF Project *Mechanics of Smart Structures*, Institute of Technical Mechanics, JKU Linz

3 Fellowships and awards

- **Upper Austrian Savings Bank-Science Promotion-Richard Büche Award** 2001
Awarded for best Ph.D. thesis at Faculty of Engineering and Natural Sciences, JKU Linz
- **MAX-KADE post-doctoral fellowship** July 2002 to June 2003
Awarded by the Austrian Academy of Sciences
Host institution: Department of Engineering Sciences and Mechanics, Pennsylvania State University (advisor: Prof. Vasundara V. Varadan)
- **Wilhelm Macke Award** 2004
Awarded by the Rotary Club Linz for outstanding scientific achievements

4 Scientific community service

4.1 Editorial work for international journals

- *Advisory Board Structural Control & Health Monitoring*, Wiley 2012 to present
- *Editorial Advisory Board Acta Mechanica*, SpringerNature 2013 to 2016
- *Co-Editor Acta Mechanica*, SpringerNature 2016 to present

4.2 Scientific associations / committees

- *Scientific Committee, International Conferences on Advanced Dynamics and Model Based Control of Structures and Machines* 2012 to present
- *Scientific Committee, International Symposia on Design, Modelling and Experiments on Adaptive Structures and Smart Materials* 2012 to present
- *European Association for the Control of Structures* 2012 to present
- *Austrian National Committee for Theoretical and Applied Mechanics* 2014 to present
- *Scientific Committee, Bi-Annual ECCOMAS Thematic Conferences on Smart Materials and Structures* 2015 to present
- *Board of Directors - European representative, International Association for Structural Control and Monitoring* 2016 to present

4.3 Workshops and conferences

- **3rd European Conference on Structural Control** July 2004
Member of the Organizing Committee, Vienna University of Technology, Austria
- **INTAS Strategic Scientific Workshop on Advanced Dynamical Modelling in Structural Control** July 2004
Member of the Organizing Committee, Vienna University of Technology, Austria
- **1st Japan-Austria Joint Workshop on Mechanics and Control of Smart Materials and Structures**
September 2008
Member of the Organizing Committee, Johannes Kepler University Linz, Austria
- **Russia - Austria Joint Workshop on Advanced Dynamics and Model Based Control of Structures and Machines** April 2010
Member of the Organizing Committee, Johannes Kepler University Linz, Austria
- **5th International Symposium on Design, Modelling and Experiments of Advanced Structures and Systems** October 2012
Chair of the Organizing Committee, Ulrichsberg, Austria
- **2012 RAS-JKU-ACCM Joint Workshop on Advanced Dynamics and Model Based Control of Structures and Machines** November 2012
Chair of the Organizing Committee, Johannes Kepler University Linz, Austria
- **2nd International Conference on Advanced Dynamics and Model Based Control of Structures and Machines** September 2015
Co-chair of the Organizing Committee, Vienna, Austria

- **Symposium "200 Years of Mechanics at TU Vienna"** *November 2016*
Co-chair of the Organizing Committee, Vienna, Austria
- **4th International Workshop on Advanced Dynamics and Model Based Control of Structures and Machines** *September 2019*
Co-chair of the Workshop, Linz, Austria
- **Symposium "Mechatroniktag des Instituts für Mechanik und Mechatronik"** *November 2019*
Chair of the Organizing Committee, Vienna, Austria

4.4 Thematic mini-symposia and special sessions

- **Mini-Symposium "Sensor Systems for Structural and Health Monitoring"** *September 2008*
together with Yu. Vetyukov, 4th European Conference on Structural Control, St. Petersburg, Russia
- **Session "Coupled Problems"** *March 2010*
together with S. Kinkel, 81st Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM 2010), Karlsruhe, Germany
- **Special Session "Piezoelectricity and its Applications to Structural Control and Health Monitoring"** *June 2012*
together with J. Gerstmayr, 5th European Conference on Structural Control (EACS 2012), Genoa, Italy
- **Special Session "Material Behaviour, Simulation and Testing of Controlled Smart Structures with Piezoelectric Actuators and Sensors"** *June 2013*
together with A. Benjeddou, 6th ECCOMAS Thematic Conference on Smart Structures and Materials (SMART 2013), Torino, Italy
- **Special Session "Global Approaches to Structural Monitoring and Control"** *July 2014*
together with H. Irschik and J. Holnicki-Sculz, 6th World Conference on Structural Control and Monitoring (6WC-SCM), Barcelona, Spain
- **Mini-Symposium "Piezoelectric Sensors, Actuators & Transducers for Structural Control and Health Monitoring"** *June 2015*
together with A. Benjeddou, 7th ECCOMAS Thematic Conference on Smart Structures and Materials (SMART 2015), Ponta Delgada, Azores
- **Thematic Session "Axially Moving Structures"** *September 2015*
together with Yu. Vetyukov, 3rd Polish Congress of Mechanics & 21st International Conference on Computer Methods in Mechanics (PCM-CMM-2015), Gdansk, Poland
- **Mini-Symposium "Mechanics and Model-Based Control"** *March 2016*
together with H. Irschik & K. Schlacher, 87th Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM 2016), Braunschweig, Germany
- **Mini-Symposium "Non-linear Modeling of Smart Materials and Structures"** *June 2017*
together with A. Humer, 8th ECCOMAS Thematic Conference on Smart Structures and Materials (SMART 2017), Madrid, Spain
- **Mini-Symposium "Advances in Modeling and Design of Smart Structures"** *June 2018*
together with E. Zappino, A. Araujo, F. Moleiro & A. Ehrenhofer, 1st International Conference on Mechanics of Advanced Materials and Structures (ICMAMS), Torino, Italy
- **Section "S01 Multi-body dynamics"** *February 2019*
together with J. Gerstmayr, 90th Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM 2019), Vienna, Austria
- **Mini-Symposium "Advances in Non-linear Modeling of Smart Materials and Structures"** *July 2019*
together with A. Humer, 9th ECCOMAS Thematic Conference on Smart Structures and Materials (SMART 2019), Paris, France

4.5 Referee for funding organisations

- **MIUR (Ministry of Education, University and Research), Italy** *since 2012*
- **IWT - Agency for Innovation by Science and Technology, Belgium** *since 2014*

4.6 Reviewer for international journals

International Journal of Solids and Structures, Journal of Applied Mechanics, Journal of Sound and Vibration, Acta Mechanica, Composite Structures, International Journal for Numerical Methods in Engineering, IEEE Transactions on Control Systems Technology, IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, Smart Structures and Systems, Structural Control and Health Monitoring, Smart Materials and Structures, IEEE Sensors Journal, Mechatronics, Meccanica, European Journal of Mechanics - A/Solids, Control Engineering Practice, Proceedings of the Institution of Mechanical Engineers - Part G - Journal of Aerospace Engineering, International Journal of Thermal Sciences, ZAMM, Journal of Computational and Nonlinear Dynamics, Journal of Vibration and Control, Nonlinear Dynamics, Engineering Structures, Journal of Sensors and Sensor Systems, Journal of Intelligent Material Systems and Structures

4.7 Invited participation in strategic workshops

- ESF/NSF Jointly Sponsored Workshop on **Smart Structures and Advanced Sensor Technologies**, Santorini, Greece, 2005
- AFOSR/ARO/NSF/ONR/ESF Jointly Sponsored Workshop on **Autonomic Structural Systems for Threat Mitigation**, Juan les Pins, France, 2006.
- **7th International Workshop on Structural Control and Monitoring**, July, 25th, 2016, Incheon, Korea.

5 University commissions and committees

5.1 Administrative committees

- **Curriculum and Academics Programs Board in Mechatronics** *2004 to 2014*
Vice-head, Faculty of Technical and Natural Sciences, JKU Linz
- **Research and Teaching Fellowship Commission** *2006 to 2014*
Member, Faculty of Technical and Natural Sciences, JKU Linz
- **TEquality - Technology.Gender.Equality Committee** *2009 to 2014*
Member, Faculty of Technical and Natural Sciences, JKU Linz
- **Faculty Assembly, Faculty of Technical and Natural Sciences** *2009 to 2014*
Member, Faculty of Technical and Natural Sciences, JKU Linz
- **Faculty Assembly, Faculty of Mechanical and Industrial Engineering** *2016 to 2019*
Member, Faculty of Mechanical and Industrial Engineering, TU Wien

5.2 Professorship appointment committees

- **Lightweight Design Engineering** *2007*
Member of the Advisory Committee for the preparation of the position posting, Faculty of Technical and Natural Sciences, JKU Linz
- **Polymer Product Engineering** *2008*
Member of the Advisory Committee for the preparation of the position posting, Faculty of Technical and Natural Sciences, JKU Linz
- **Medicine Mechatronics** *2012*
Member of the Appointment Committee, Faculty of Technical and Natural Sciences, JKU Linz
- **3D Printing und Biofabrication** *2018*
Member of the Appointment Committee, Faculty of Mechanical and Industrial Engineering, TU Wien
- **Lightweight Engineering** *2018*
Nonvoting member of the Appointment Committee, Faculty of Mechanical and Industrial Engineering, TU Wien
- **Technical Dynamics** *2019*
Member of the Advisory Committee for the preparation of the position posting, Faculty of Mechanical and Industrial Engineering, TU Wien

5.3 Habilitation committees

- **Dr. Yury Vetyukov** 2017
Head, Faculty of Mechanical and Industrial Engineering, TU Wien
- **Dr. Alexander Schirrer** 2018
Member, Faculty of Mechanical and Industrial Engineering, TU Wien
- **Dr. Aleksandr Ovsianikov** 2018
Member, Faculty of Mechanical and Industrial Engineering, TU Wien

6 Teaching

6.1 Classroom teaching

PREPARATORY CLASSES

- Lecture **Fundamentals of Physics for Mechatronics and Information Technology** (JKU Linz) 2009 to 2014
- Tutorial **Intensive Math** (2.5 ECTS - JKU Linz) 2011 to 2014

UNDERGRADUATE CLASSES

- Lecture **Engineering Mechanics 2** (4.5 ECTS - JKU Linz) 2006 & 2020
- Tutorial **Engineering Mechanics 1** (2.5 ECTS - JKU Linz) 2001 to 2014
- Tutorial **Engineering Mechanics 2** (2.5 ECTS - JKU Linz) 2000 to 2014 & 2020
- Lecture **Basics of Lightweight Engineering** (3 ECTS - JKU Linz) 2009
- Lecture **Mechanics 3** (4.5 ECTS - TU Wien) 2014 to 2019
- Lecture & Tutorial **Advanced Strength of Materials** (5 ECTS - TU Wien) 2015 to 2020

GRADUATE CLASSES

- Lecture **Advanced Strength of Materials III** (3 ECTS - JKU Linz) 1998 to 2002
- Lecture **Selected Topics in Strength of Materials** (3 ECTS - JKU Linz) 2006 to 2014
- Lecture & Tutorial **Mechanics of Intelligent Structures** (4.25 ECTS - JKU Linz) 2010 to 2014
- Lecture & Tutorial **Theory of Plane Structures** (3 ECTS - TU Wien) 2015 to 2019
- Lecture & Tutorial **Mechanics of Intelligent Structures** (3 ECTS - TU Wien) 2016 to 2019

6.2 Theses (co-)supervision

BACHELOR THESES

1. A. Reischl: **Numerische und experimentelle Verifikation piezoelektrischer Balkenelemente**, Institute for Technical Mechanics, JKU Linz, 2010.
2. M. Meindlhumer: **Analytische Modellierung von Balken mit piezoelektrischen Sensoren**, Institute for Technical Mechanics, JKU Linz, 2010.
3. J. Scharinger: **Experimentelle Untersuchungen eines Kragbalkens mit piezoelektrischen Aktoren und Vergleich mit analytischen Ergebnissen**, Institute for Technical Mechanics, JKU Linz, 2011.
4. R. Wallner-Silberhuber: **Analytische Untersuchungen eines Kragbalkens mit piezoelektrischen Aktoren und Vergleich mit experimentellen Ergebnissen**, Institute for Technical Mechanics, JKU Linz, 2011.
5. K. Krumphuber: **Evaluierung verschiedener Näherungslösungen für einen schwingenden Balken**, Institute for Technical Mechanics, JKU Linz, 2013.
6. H. Ondracek: **Modellierung des Dachtrgers eines geschlossenen Stahl-Email-Behälters**, Institute for Mechanics and Mechatronics, TU Wien, 2016.
7. M. Mesterhazi: **Einfluss der Beschnittkantenausführung auf die Lebensdauer**, Institute for Mechanics and Mechatronics, TU Wien, 2017.

8. L. Ozcan: **Vergleich von Scheiben und Balkenlösungen schlanker Stäbe mittels des Ritz'schen Verfahrens**, Institute for Mechanics and Mechatronics, TU Wien, 2020.

MASTER THESES

1. M. Gruber: **Analytische Lösung für elastische Rechteckscheiben mit piezoelektrischen Schichten**, Institute for Technical Mechanics, JKU Linz, 1999.
2. H. Gattringer: **Kollokative Regelung von piezoelektrischen Platten mit geschapeten Elektroden**, Institute for Technical Mechanics, JKU Linz, 2001.
3. M. Nader: **Exakte Verformungskontrolle dynamisch belasteter piezoelektrischer Platten**, Institute for Technical Mechanics, JKU Linz, 2001.
4. K. Heilbrunner: **Entwurf piezoelektrischer Sensoren zur Messung strukturmechanischer Größen**, Institute for Technical Mechanics, JKU Linz, 2007.
5. M. Zellhofer: **Verformungskontrolle eines elastischen Tragwerks mittels diskreter piezoelektrischer Aktorik**, Institute for Technical Mechanics, JKU Linz, 2007.
6. M. Hörl: **Aktive Schwingungskompensation an einem Magnetresonanztomographen mit piezoelektrischen Sensoren und Aktoren**, Institute for Technical Mechanics, JKU Linz, 2008.
7. G. Zenz: **“Shunt Damping“ - Elektrische Netzwerke zur Schwingungsdämpfung mit piezoelektrischen Sensoren/ Aktoren**, Institute for Technical Mechanics, JKU Linz, 2010.
8. A. Reischl: **Structural Health Monitoring eines 3-stöckigen Rahentragwerks: Modellbildung, Schadenserkennung und experimentelle Verifizierung**, Institute for Technical Mechanics, JKU Linz, 2013.
9. M. Pieber: **Modelling and Control of a Thin Piezoelectric Shell**, Institute for Technical Mechanics, JKU Linz, 2014.
10. M. Meindlhumer: **Optimal Actuator Distributions for Shape Control of Thin Rectangular Plates**, Institute for Technical Mechanics, JKU Linz, 2014.
11. S. Brötz: **Untersuchung zur Verbesserung des Crashverhaltens von 2-Kammer-Profilen**, Institute for Mechanics and Mechatronics, TU Wien, 2017.
12. I. Mayrhofer: **Entwicklung eines standardisierten Berechnungsmodells zur einfachen Spannungsanalyse für Rohrleitungen im Anlagenbau zur Stahlerzeugung**, Institute for Mechanics and Mechatronics, TU Wien, 2018.
13. T. Hötzer: **Vibration Based Structural health Monitoring of the Giuseppe Meazza Stadium**, Institute for Mechanics and Mechatronics, TU Wien, 2020.

PH.D. THESES

1. M. Nader: **Compensation of Vibrations in Smart Structures: Shape Control, Experimental Realization and Feedback Control**, Institute for Technical Mechanics, JKU Linz, 2007.
2. M. Höge: **Sensorische Rückwirkung von piezoelektrischen Aktoren und ihre Anwendung im Kraftfahrzeug**, Institute for Technical Mechanics, JKU Linz, 2007.
3. D. Huber: **Modeling and control of thin plate structures by piezoelectric actuators and sensors**, Institute for Technical Mechanics, JKU Linz, 2011.
4. P. Berik: **Experimental benchmarking and Saint-Venant type solutions of piezoelectric d_{15} shear and torsion transducers**, Institute for Technical Mechanics, JKU Linz, 2013.
5. S. Duczek: **Higher order finite elements and the fictitious domain concept for wave propagation analysis**
Institute for Mechanics, Otto von Guericke Universität Magdeburg, 2014. *External referee*
6. G. Simon: **Modeling and Simulation of Bulging in a Continuous Casting Machine**
Institute for Technical Mechanics, JKU Linz, 2015. *External referee*
7. E. Staudigl: **Nonlinear modeling and analysis of thin dielectric elastomer structures as electro-elastic material bodies and surfaces**
Institute for Mechanics and Mechatronics, TU Wien. *2020*
8. Ch. Schmidrathner: **Thin-Walled profiles**
Institute for Mechanics and Mechatronics, TU Wien. *In progress*
9. J. Scheidl: **Modelling and Simulation of endless stell bands**
Institute for Mechanics and Mechatronics, TU Wien. *In progress*
10. M. Feri: **Elasticity for layered FGM plates**
Institute for Mechanics and Mechatronics, TU Wien. *In progress*

7 Research projects

7.1 Public funding

- FWF project P11993-TEC **Mechanics of Smart Structures**, JKU Linz *1997-1999*
 Function: Junior researcher / Project leader: Hans Irschik
- EU - RIO (Regional Innovation System Upper Austria) project **SCN-Structural Control Network**, JKU Linz *2004-2006*
 Partners: Profactor Produktionsforschungs GmbH, Linz Center of Mechatronics GmbH, Institute of Automatic Control and Control Systems Technology, Upper Austrian Technology Management and Regional Development Agency
 Function: Senior researcher / Project leader: Hans Irschik
- FWF project L441-N14 **Sensor Systems for Structural and Health Monitoring**, JKU Linz *2008-2011*
 Partner: Linz Center of Mechatronics GmbH
 Function: Principal investigator
- EU Leonardo da Vinci (LdV) Transfer of Innovation Project 2011-1-TR1-LEO05-27938 **VET in Rapid Earthquake Damage Assessment of Buildings to Avoid the Demolishing**, JKU Linz *2012-2014*
 Partners: BUPIM (Turkey), ERBIL (Turkey), Aratos Technologies (Greece), University of Pavia (Italy), SIART SRL (Italy), Bogazici University Kandilli Observatory & Earthquake Research Institute (Turkey)
 Function: Responsible key researcher
- FWF Joint project I2093 **Eulerian Mechanics of Belts**, TU Wien acting as national research partner *2015-2018*
 Partners: Institute of Technical Mechanical (JKU Linz), Institute for Problems in Mechanical Engineering (RAS St.Petersburg), St. Petersburg Polytechnic University (Russia)
 Function: Key researcher / Project leader: Hans Irschik

7.2 Industrial funding

- Linz Center of Mechatronics GmbH; Research Area **Non-KPlus research** - Projekt 34000 **Nano-imprint Lithography: Improvement of Precision by Smart Actuation/ Sensing**, JKU Linz *2004 - 2005*
 Partner: Profactor Produktionsforschungs GmbH
 Function: Senior researcher / Project leader: Hans Irschik

7.3 Joint public and industrial funding

- KPlus Linz Center of Competence in Mechatronics; Research Area **Advanced Dynamics and Control in Mechanical Systems (DynACon)**, JKU Linz *2003 - 2008*
 Scientific partners from JKU Linz: Institute of Technical Mechanical, Institute of Automatic Control and Control Systems Technology, Institute of Robotics, Company partners: see the projects below
 Function: Senior researcher / Project leaders: Hans Irschik, Kurt Schlacher & Hartmut Bremmer
 - Projekt 2.8 **Specially Shaped Piezoelectric Sensors and Actuators in Light-weighted Structures**
 Company partner: Siemens Corporate Technology Munich / Microsystems
 - Projekt 140400 **Deformation and Noise Cancellation in Dynamically Loaded Structures and Machines by Active and Passive Control**
 Company partner: Siemens Corporate Technology Munich / Power Systems and Sensors
 - Projekt 240100 **Combination of Symbolic and Numerical Computations in the Dynamics and Control of Machines**

- K2 Austrian Center for Competence in Mechatronics - Funding Period 1; Research Area **Mechanics and Model Based Control**, JKU Linz *2008 - 2012*
 Scientific partners from JKU Linz: Institute of Technical Mechanical, Institute of Automatic Control and Control Systems Technology, Institute of Robotics, Company partners: see the projects below
 Function: Scientific coordinator (together with Kurt Schlacher), project leader & key researcher

 - Project MFP2 - Subproject A120201 **New Methods for Nonlinear Modeling of Smart Structures and Machines in Multi-Field and Multi-Body Dynamics**, JKU Linz
 Company partner: Siemens AG CT PS8
 Function: Key researcher / Project leader: Hans Irschik
 - Projekt STRAT1 - Subproject A220401 **Mechanical Modelling of Structures, Robots and Machines**, JKU Linz
 Function: Project leader & responsible key researcher

- K2 Austrian Center for Competence in Mechatronics - Funding Period 2; Research Area **Mechanics and Model Based Control**, JKU Linz *2013-2014*
 Scientific partners from JKU Linz: Institute of Technical Mechanical, Institute of Automatic Control and Control Systems Technology, Institute of Robotics, Company partners: see the projects below
 Function: Area coordinator (together with Kurt Schlacher), project leader & key researcher

 - Project MFP1 *Optimization and Control of Inelastic Constitutive Processes* - Subprojects C120102 **Modelling of the Sheet Run and Control for Hot Roll Mills** and C120106 **Advanced mechanical modelling of automatic panel benders with high accuracy demand**, JKU Linz
 Company partners: Siemens Erlangen Metal Technologies / Salvagnini Maschinenbau GmbH
 Function: Key researcher / Project leaders: Peter Gruber (120102) and Christian Zehetner (C120106)
 - Project MFP4 *Multi-Body Dynamics and Control in Advanced Machines and Robotics* - Subproject C120405 **Simulation of an automative gearbox including hydraulic and mechanical components for model-based control**, JKU Linz
 Company partner: AVL List GmbH
 Function: Key researcher / Project leader: Jürgen Schöftner
 - Strategic Project C220101 **Frontiers in the Mechanics of Controlled Structures and Machines**, JKU Linz
 Function: Project leader & responsible key researcher

- COMET K2 project **Frontiers in the Mechanics of Controlled Structures and Machines**, TU Wien acting as subcontractor *2015-2017*
 Contracting party: Institute of Technical Mechanical, JKU Linz
 Function: Project leader & key researcher

- COMET K2 project **Optimization and Control of Inelastic Constitutive Processes**, TU Wien acting as subcontractor *2015-2017*
 Contracting party: Institute of Technical Mechanical, JKU Linz
 Function: Project leader & key researcher

- FFG Bridge project **Modellbildung und Simulation des lateralen Laufverhaltens von schwach gespannten Prozessstahlbändern (LaLaBand)**, TU Wien *2017-2020*
 Partner: Berndorf Band GmbH
 Function: Key researcher / Project leader: Yury Vetyukov