

# Curriculum Vitae

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## Advanced academic qualification

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02/2008 - 04/2014 Habilitation (extra-occupational): Faculty of Mechanical Engineering, Ruhr University Bochum, Germany  
 Thesis: *Energy Methods in Material Modeling of Martensitic Phase Transformations.*  
 02/2005 - 06/2007 Doctorate (Dr.-Ing.) in mechanical engineering: Ruhr-University Bochum, Germany;  
 Thesis: *Micromechanical modeling of shape memory materials*  
 10/2000 – 12/2004 Studies of mechanical engineering (Dipl.-Ing.): Ruhr-University Bochum, Germany;  
 Escuela Superior de Ingenieros, Seville, Spain; University of California, Berkeley, USA

## Professional Experience

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06/2020 - current Executive Director of Leibniz-Institut für Werkstofforientierte Technologien – IWT,  
 Head of Department *Materials Engineering*, Bremen, Germany  
 Head of MPA Bremen Institute for Materials Testing, Bremen, Germany  
 Full Professor of Materials Engineering/Metals in the Faculty of Production Engineering, University of Bremen  
 01/2017 - 04/2020 Head of Product Development: Technology and Innovation  
 thyssenkrupp Steel Europe AG, Duisburg, Germany  
 10/2016 - 12/2016 Head of Research and Development: Heavy Plate Business Unit  
 thyssenkrupp Steel Europe AG, Duisburg, Germany  
 06/2012 - 09/2016 Head of Idea Generation and Validation: Technology and Innovation  
 thyssenkrupp Steel Europe AG, Duisburg, Germany  
 02/2011 - 05/2012 Senior Engineer Project Management: Technology and Innovation  
 ThyssenKrupp Steel Europe AG, Duisburg, Germany  
 09/2007 – 01/2011 Senior Engineer Conventional Steels: Materials Competence Center  
 ThyssenKrupp Steel Europe AG, Duisburg, Germany

## Committees

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- Member of the executive Committee, International Federation for Heat Treatment and Surface Engineering (since 2023)
- Member of the WAW-Wissenschaftlicher Arbeitskreis der Universitäts-Professoren der Werkstofftechnik e.V. (since 2023)
- Member of the Scientific Advisory Board of the INM – Leibniz-Institut für Neue Materialien gGmbH (since 2023)
- Chairman of the Scientific Council and (since 2023) Vice Chairman of the U Bremen Research Alliance
- Chairman, Conference “Additive Manufacturing: Materials – Processes – Heat Treatment”, June 29th – 30th, Bremen, Germany (since 2022)

- Member of the Board of Trustees and Chairman of the Advisory Board of the “Bundesanstalt für Materialforschung und -prüfung” (BAM), Berlin, Germany (since 2022)
- Member of the Board of the “Arbeitsgemeinschaft Wärmebehandlung und Werkstofftechnik e.V.” (AWT), Germany (since 2021)
- Member of the Board of the Forschungsvereinigung Recycling und Wertstoffverwertung im Bauwesen e. V. (RWB), Germany (since 2020)
- Member of the Governing Council, International Federation for Heat Treatment and Surface Engineering (since 2020)
- Editor-in-Chief of HTM – Journal of Heat Treatment and Materials since 2020
- Member of the “Deutsche Gesellschaft für Materialkunde e.V.” (DGM)
- Member of the “Verein Deutscher Ingenieure” (VDI)
- Member of the „Arbeitsgemeinschaft Wärmebehandlung und Werkstofftechnik e.V.“ (AWT)

### Honors and Recognitions

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2017	steeltomorrow: highest award, innovation award thyssenkrupp Steel Europe
2008	ThyssenKrupp Materials Innovation Award, Ruhr University Bochum
2005 - 2007	Doctoral Scholarship, German Academic Scholarship Foundation
2005	Adam Opel Award for the diploma, Ruhr University Bochum
2004	Scholarship for Studying Abroad, Dr.-Jürgen-Ulderup-Foundation
2003 - 2005	Scholarship ThyssenKrupp Studies Advancement
2003	ThyssenKrupp Student Award, Ruhr University Bochum
2003 - 2005	Scholarship, German Academic Scholarship Foundation
2002 - 2003	Scholarship for Studying Abroad, German Academic Exchange Service
2002	Scholarship, Foundation of the German Economy

### Selected Publications

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1. C. Örnek, R. Fechte-Heinen: Designing Hydrogen Permeation Barriers in Titanium Aluminium Nitride through First Principles Density Functional Theory Calculations, HTM - Journal of Heat Treatment and Materials, Vol 79 (6), 311-337 (2025), <https://doi.org/10.1515/htm-2024-0020>
2. A. Schmidt, C. Gierden, R. Fechte-Heinen, S. Reese, J. Waimann: Efficient thermo-mechanically coupled and geometrically nonlinear two-scale FE-FFT-based modeling of elasto-viscoplastic polycrystalline materials, Computer Methods in Applied Mechanics and Engineering, Vol. 435 (2025), <https://doi.org/10.1016/j.cma.2024.117648>
3. A. Silveira, L. Belkacemi, P. J. de Castro, M. Schowalter, R. Fechte-Heinen, J. Epp: Effect of intrinsic heat treatment on the precipitate formation of X40CrMoV5–1 tool steel during laser-directed energy deposition: A coupled study of atom probe tomography and in situ synchrotron X-ray diffraction, Acta Materialia 283, 120488 (2025), <https://doi.org/10.1016/j.actamat.2024.120488>
4. P. J. de Castro, A. Silveira, J. Dong, C. J. Turra, A. S. Rocha, R. Fechte-Heinen, J. Epp: *Effect of Thermomechanical Processing on the Transformation Kinetics, Microstructure and Mechanical Properties of a Continuously Cooled Cementite-free Bainitic Steel*, HTM - Journal of Heat Treatment and Materials, 79 (3), 130 - 1461 (2024), <https://doi.org/10.1515/htm-2024-0008>
5. M. Sommer, A. Sitzmann, K. Hantzsche, T. Tobie, K. Stahl, R. Fechte-Heinen, S. Hoja: *Optimized Compound Layer Design for Highly Loaded Nitrided Gears*, Journal of Materials Engineering and Performance (2024) <https://doi.org/10.1007/s11665-024-09659-1>
6. M. Hesselmann, R. Fechte-Heinen, L. Mädler, M. Steinbacher, A. Toenjes: *Smart-Alloying – Liquid in-situ re-alloying in additive manufacturing*, Additive Manufacturing, 80, 103988 (2024), <https://doi.org/10.1016/j.addma.2024.103988>

8. S. Hoja, R. Baustert, H. Hasselbruch, M. Steinbacher, R. Fechte-Heinen: *Investigation of combined surface treatments and coatings to increase the wear behavior of heat treatable steels*, Surface and Coatings Technology, Vol 472, 129929 (2023), <https://doi.org/10.1016/j.surfcoat.2023.129929>
9. R. Fechte-Heinen, D. Fuhrländer, A. Mehner, H. Decho, M. Castens, K. Burkart, R. Tinscher, T. Stührmann: *The Hydrogen Challenge: Requirements for Future Materials*, HTM-Journal of Heat Treatment and Materials, 78 (4), 233-251 (2023), <https://doi.org/10.1515/htm-2023-0014>
10. M. Sommer, G. Ebner, H. Decho, S. Hoja, R. Fechte-Heinen: *Surface preparation for characterization of nitride compound layers using hardness indentation and the Palmqvist method*, Journal of Materials Research and Technology, 24, oo. 7974-7988 (2023), <https://doi.org/10.1016/j.jmrt.2023.05.041>

## Selected Patents

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1. R. Fechte-Heinen, S. Mayer, A. Offergeld, L. Patberg, A. Cott: *Metal Powder for Powder-based Production Processes and Method for Production of a Metallic Component from Metal Powder* (2023), EP3046704B1
2. R. Fechte-Heinen, C. Escher, E. Schaffnit, C. Mertin, S. Prochotta, T. Stötzel, A. Peuster: *Hot rolled flat steel product and method for the production thereof* (2020), CN113661260B
3. C. Höckling, M. Daamen, M. Schirmer, H. Hofmann, J.-U. Becker, R. Fechte-Heinen, L. Patberg, V. Wieschalla: *Verfahren zum Erzeugen eines Stahlflachprodukts mit einem amorphen oder teilamorphen Gefüge und Produkt hergestellt aus einem solchen Stahlflachprodukt*. DE102021116380B4 (2023)
4. M. Irnich, R. Fechte-Heinen, M. Lange, B. Linke, J.-H. Rudolph, R. G. Thiessen: *Flat steel product and method for producing same* (2023), US11597986B2
5. M. Irnich, R. Fechte-Heinen, J. Horstmann, R. G. Thiessen: *Hot-rolled flat steel product and method for the production thereof* (2022), US11371113B2
6. R. G. Thiessen, M. Irnich, J.-H. Rudolph, B. Linke, R. Fechte-Heinen: *Flat steel product and method for the production thereof* (2022), EP3688203B1
7. R. G. Thiessen, M. Irnich, J.-H. Rudolph, B. Linke, R. Fechte-Heinen: *Method for producing a coated flat steel product and coated flat steel product* (2022), EP3856936B1
8. Hoffstiepel, J., Kern, A.; Fechte-Heinen, R.: *Verfahren zur Herstellung eines Bauteils, Stahlflachprodukt und Verwendung eines solchen Stahlflachprodukts* (2022), DE102020105046B4
9. L. Patberg, V. Wieschalla, R. Fechte-Heinen: *Device and method for producing a rotationally symmetrical, hollow metallic workpiece* (2017), DE102015116520B4
10. R. Fechte-Heinen, L. Patberg, A. Cott, J. Kevenhörster: *Multi-layer composite materia, production method and pre-product having metal shape-memory material* (2016), JP6659664B2

Bremen, March 2025