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**Degrees**

- Ph.D., Oregon State University, Corvallis OR USA (2003)
Thesis (Materials Science and Engineering): 'Phase Diagram, Thermal Stability, and High Temperature Oxidation of the Ternary Cu-Fe-Ni System' (Prof. M. E. Kassner)
- Laurea in Chemistry, University of Turin, Italy (1997)
Thesis (Inorganic and Solid State Chemistry): 'Solid State Reactions in Al/Ni Alternate Foils Induced by Cold Rolling and Annealing' (Prof. L. Battezzati)

Professional experience

- Lecturer/Senior Researcher, Saarland University Germany (September 2005-present)
- Assistant Professor of Mechanical Engineering, Oregon State University USA (2004-2005)
- Lecturer of Mechanical Engineering, Oregon State University USA (2003-2004)
- Visiting Researcher, University of Dortmund Germany (Summer 2004)
- Researcher, The Netherlands Institute for Metals Research (NIMR), Delft-NL (1998-'99)

Research activities (since 1997)

Alloy development and processing. Thermodynamics and kinetics of phase transformation. Interface reactions. Metallic glasses. Conventional crystalline alloys. Metallic multilayer thin films.

Teaching experience (continuous teaching since 2002)

Corrosion and Oxidation of Metals;
Introduction to Materials Science;
Rate Processes in Materials;
Thermodynamics of Materials;
Fracture and Fatigue of Materials;
Materials Science Laboratory

Professional activities (Funding: 1,644,541 € for research and ~ 800,000 € for education)

(2019-2021) Research activities funded by the Deutsche Forschungsgemeinschaft (DFG) with topic: 'Thermodynamic and kinetics of Ni/Al Morphologies'. Part of a collaborative research on 'Reactive Microjoining', involving Saarland University, TU-Ilmenau and KIT-Karlsruhe.

(2017-present) Habilitation track in Materials Science and Engineering (Metallic Materials).

(2012-2104; 2016-2018) Research activities funded by the Deutsche Forschungsgemeinschaft (DFG) with topic: 'Thermophysical properties of non-Zr-based multicomponent bulk metallic glass alloys'

(2010-2012; 2014-2016) Coordination of researcher activities within the Förderung der industriellen Gemeinschaftsforschung und -entwicklung (IGF) project, 'Herstellungs- und Anwendungsmöglichkeiten massiver metallischer Gläser auf Edelmetallbasis'

(2007-present) Student Adviser for Double Bachelor's degree in Materials Science and Mechanical Engineering (USA-Germany)

(2007-2012) Development of a Transatlantic (ATLANTIS) Double Bachelor's degree (in Materials Science and Mechanical Engineering) between Germany, Sweden, and USA.

(2004-2005) Student Adviser for Bachelor degree in Mechanical Engineering (in USA)

Publications

1. N. Neuber, O. Gross, M. Eisenbart, A. Heiss, U.E. Klotz, J.P. Best, M.N. Polyakov, J. Michler, R. Busch, I. Gallino, *The role of Ga addition on the thermodynamics, kinetics, and tarnishing properties of the Au-Ag-Pd-Cu-Si bulk metallic glass forming system*, **Acta Materialia** 125 (2019) 315-326
2. C. Pauly, K. Woll, I. Gallino, M. Stüber, H. Leiste, R. Busch and F. Mücklich, *Ignition in ternary Ru/Al-based reactive multilayers – Effects of chemistry and stacking sequence*, **J. of Applied Physics** 124 (2018) 195301
3. S. Hechler, B. Ruta, M. Stolpe, E. Pineda, Z. Evenson, O. Gross, W. Hembree, A. Bernasconi, R. Busch, and I. Gallino, *Microscopic evidence of the connection between liquid-liquid transition and dynamical crossover in an ultraviscous metallic glass former*, **Physical Review Materials** 2 (2018) 085603
4. M. Frey, R. Busch, W. Possart, I. Gallino, *On the Thermodynamics, Kinetics, and Sub-Tg Relaxations of Mg-Based Bulk Metallic Glasses*, **Acta Materialia** 155 (2018) 117-127
5. S. Hechler, I. Gallino, M. Stolpe, F.T. Lentz, R. Busch, *Analysis of thermophysical properties of lead silicates in comparison to bulk metallic glasses*, **J. Non-Crystalline Solids** 485 (2018) 66-73
6. O. Gross, M. Eisenbart, L.Y. Schmitt, N. Neuber, L. Ciftci, U.E. Klotz, R. Busch, I. Gallino, *Development of novel 18-karat, premium-white gold bulk metallic glasses with improved tarnishing resistance*, **Materials & Design** 140 (2018) 495-504
7. I. Gallino, D. Cangialosi, Z. Evenson, L. Schmitt, S. Hechler, M. Stolpe, and B. Ruta, *Hierarchical aging pathways and reversible fragile-to-strong transition upon annealing of a metallic glass former*, **Acta Materialia** 144 (2018) 400-410
8. O. Gross, S.S. Riegler, M. Stolpe, B. Bochtler, A. Kuball, S. Hechler, R. Busch, I. Gallino, *On the high glass-forming ability of Pt-Cu-Ni/Co-P-based liquids*, **Acta Materialia** 141 (2017) 109–119
9. O. Gross, B. Bochtler, M. Stolpe, S. Hechler, W. Hembree, R. Busch, and I. Gallino, *The kinetic fragility of Pt-P- and Ni-P-based bulk glass forming liquids and its thermodynamic and structural signature*, **Acta Materialia** 132 (2017) 118-127
10. I. Gallino, *On the fragility of bulk metallic glass forming liquids*, **Entropy** 19 (2017) 483-497
11. R. Busch, I. Gallino, *On the kinetic, thermodynamics and structure of bulk metallic glass forming liquids*, **JOM-J Min. Met. Mat. S. 69** (2017) 2178–2186
12. I. Gallino, R. Busch, *Relaxation pathways in metallic glasses*, **JOM-J Min. Met. Mat. S. 69** (2017) 2171–2177
13. H. Aboufadel, I. Gallino, R. Busch, F. Mücklich, *Atomic Scale Analysis of Phase Formation and Diffusion Kinetics in Ag/Al Multilayer Thin Films*, **J. of Applied Physics** 120/20 (2016) 195306
14. B. Bochtler, O. Gross, I. Gallino, R. Busch, *Thermo-physical characterization of the $Fe_{67}Mo_6Ni_{3.5}Cr_{3.5}P_{12}C_{5.5}B_{2.5}$ Bulk Metallic Glass Forming Alloy*, **Acta Materialia** 118 (2016) 129-139
15. S. Stanojevic, I. Gallino, H. Aboufadel, M. Sahin, F. Mücklich, R. Busch, *Oxidation of Glassy Ni-Nb-Sn Alloys and its Influence on the Thermodynamics and Kinetics of Crystallization*, **Acta Materialia** 102 (2016) 176-186

16. Z. Evenson, B. Ruta, S. Hechler, M. Stolpe, E. Pineda, I. Gallino, R. Busch, *X-ray Photon Correlation Spectroscopy Reveals Intermittent Aging Dynamics in a Metallic Glass*, **Physical Review Letters** 115/ 17 (2015) 175701
17. S. Wei , O. Gross. M. Stolpe, Z. Evenson, I. Gallino, W. Hembree, J. Bednarcik, J.J. Kruzic; , R. Busch, *Linking structure to fragility in metallic glass-forming*, **Applied Physics Letters** 106 (2015) 181901
18. Z. Evenson, T. Koschine, S. Wei, O. Gross, J. Bednarcik, I. Gallino, J.J. Kruzic, K. Rätzke, F. Faupel, R. Busch, *The effect of low-temperature structural relaxation on free volume and chemical short-range ordering in a $Au_{49}Cu_{26.9}Si_{16.3}Ag_{5.5}Pd_{2.3}$ bulk metallic glass*, **Scripta Materialia** 103 (2015) 14-17
19. S. Wei, E. Evenson, I. Gallino, R. Busch, *The impact of fragility on the calorimetric glass transition in bulk metallic glasses*, **Intermetallics** 55 (2014) 138-144
20. Z. Evenson, S.E. Naleway, S. Wei, O. Gross, J.J. Kruzic, I. Gallino, W. Possart, M. Stommel, R. Busch, β relaxation and low-temperature aging in a Au-based bulk metallic glass: From elastic properties to atomic-scale structure, **Physical review B** 89 (17) (2014) 174204
21. M. Eisenbart, U.E. Klotz, R. Busch, I. Gallino, A colourimetric and microstructural study of the tarnishing of gold bulk metallic glasses, **Corrosion Science** 85 (2014) 258-269
22. M. Eisenbart, U.E. Klotz, R. Busch, I. Gallino, *On the Abnormal Room Temperature Tarnishing of an 18 Karat Gold Bulk Metallic Glass Alloy*, **J. Alloys and Compounds** 615 (S1) (2014) 118-122
23. I. Gallino, O. Gross, G. dalla Fontana, Z. Evenson, R. Busch, *On the kinetics and thermodynamic fragility of the $Pt_{60}Cu_{16}Co_{2}P_{22}$ and $Pt_{57.3}Cu_{14.6}Ni_{5.3}P_{22.8}$ bulk metallic glasses*, Alloy', **J. Alloys and Compounds** 615 (S1) (2014) 35-39
24. Z. Evenson, T. Schmitt, N. Mattheis, I. Gallino and R. Busch, *High Temperature Melt Viscosity and Fragile-To-Strong Transition in Zr-Cu-Ni-Al-Nb(Ti) and $Cu_{47}Ti_{34}Zr_{11}Ni_8$ Bulk Metallic Glasses*, **AIP Conf. Proc.** 1518, (2012) 197-205
25. W. H. Warnes, J. J. Kruzic, C. C. Pratt, C. Stehr, D. P. Cann, B. J. Gibbons, I. Gallino, F. Soldera, R. Busch and L. Wallström, *Improving Participation of Engineering Students Studying Abroad: An International Dual-Degree Program in Materials Science and Mechanical Engineering*, **JOM** (23 May 2013) DOI: 10.1007/s11837-013-0637-9
26. I. Gallino, M.E. Kassner, and R. Busch, *Oxidation and corrosion of highly alloyed Cu-Fe-Ni as inert anode material for aluminum electrowinning in as-cast and homogenized conditions*, **Corrosion Science** 63 (2012) 293-303
27. Z. Evenson, T. Schmitt, M. Nicola, I. Gallino, and R. Busch, *High temperature melt viscosity and fragile-to-strong transition in Zr-Cu-Ni-Al-Nb(Ti) and $Cu_{47}Ti_{34}Zr_{11}Ni_8$ bulk metallic glasses*, **Acta Materialia** 60(12) (2012) 4712-4719
28. S. Wei, I. Gallino, R. Busch, and C. A. Angell, *Glass transition with decreasing correlation length during cooling of $Fe_{50}Co_{50}$ superlattice and strong liquids*, **Nature Physics** 7(2) (2011) 178-182
29. S. L. Philo, J. Heinrich, I. Gallino, R. Busch, and J. J. Kruzic, *Fracture and fatigue behavior of a $Zr_{58.5}Cu_{15.6}Ni_{12.8}Al_{10.3}Nb_{28}$ bulk metallic glass forming alloy*, **Scripta Materialia** 64 (2010) 359-362
30. Z. Evenson, S. Raedersdorf, I. Gallino and R. Busch, *Equilibrium Viscosity of Zr-Cu-Ni-Al-Nb Bulk Metallic Glasses*, **Scripta Materialia** 63(6) (2010) 573-576
31. Z. Evenson, I. Gallino, and R. Busch, *The effect of cooling rates on the apparent fragility of Zr-based bulk metallic glasses*, **J. of Applied Physics** 107(12) (2010) Article Number: 123529

32. I. Gallino, J. Schroers, and R. Busch, *Kinetics and thermodynamics studies of the fragility of bulk metallic glass forming liquids*, **J. of Applied Physics** 108(6) (2010) Article Number: 063501
33. I. Gallino and R. Busch, *Metallurgy beyond Fe*, **Publications of the Astronomical Society of Australia** 26(3) (2009) III-VII
34. I. Gallino, S. Curitto, M. Baricco, M.E. Kassner, and R. Busch, *Homogenization of Highly Alloyed Cu-Fe-Ni: a Phase Diagram Study*, **J. Phase Equilibria And Diffusion** 29(2) (2008) 131-135
35. I. Gallino, M. Shah, and R. Busch, *Enthalpy Relaxation and its Relation to the Thermodynamics and Crystallization of the $Zr_{58.5}Cu_{15.6}Ni_{12.8}Al_{10.3}Nb_{28}$ Bulk Metallic Glass-Forming Alloy*, **Acta Materialia** 55(4) (2007) 1367-1376
36. I. Gallino, R. Busch, H. Choi Yim, L. Jastrow, and U. Köster, *High Temperature Oxidation of the Refractory Alloy Glass $Nb_{35}Ni_{60}Sn_5$* , **J. Alloys and Compounds** 434-435 (2007) 225-228
37. D. Zander, B. Heisterkamp, and I. Gallino, *Corrosion Resistance of Cu-Zr-Al-Y and Zr-Cu-Ni-Al-Nb Bulk Metallic Glasses*, **J. of Alloys and Compounds** 434-435 (2007) 234-236
38. I. Gallino, M. Shah, and R. Busch, *Enthalpy Relaxation of the $Zr_{58.5}Cu_{15.6}Ni_{12.8}Al_{10.3}Nb_{28}$ Bulk Metallic Glass Forming Alloy*, **J. of Alloys and Compounds** 434-435 (2007) 141-144
39. L. Battezzati, P. Pappalepore, F. Durbiano, and I. Gallino, *Solid State Reactions in Al/Ni Alternate Foils Induced by Cold Rolling and Annealing*, **Acta Materialia** 47(6) (1999) 1901–1914

Books or book chapters:

1. R. Busch, Z. Evenson, I. Gallino, S. Wei, *Thermodynamics, Kinetics and Fragility of Bulk Metallic Glass Forming Liquids*. This invited review paper is dedicated to C. Austen Angell for his 80th birthday, and published in a special volume on 'Fragility of Glass-forming Liquids', ed. A. L. Greer, K. F. Kelton, and S. Sastry, Hindustan Book Agency, New Delhi, India (2014)
<https://arxiv.org/abs/1405.2251v1>

Patents:

1. DE202016004123 (U1) - Massivglasbildende Weißgoldlegierung (8 August 2016)