Curriculum vitae

Personal Details:

Name:	Anna Rosa Ziefuss
Date of birth:	02.02.1987 in Germany
Birthplace:	Mülheim an der Ruhr

Professional Scientific Activities:

since 03/2021	Junior Research Group leader, 'Surface Chemistry and Laser Processing' group (4 Scientific employees and 1 technician), Technical Chemistry I, University Duisburg-Essen (UDE)
06/2018 – 03/2021	Vice group leader, 'Biomedicine' group (5 Scientific employees and 1 technician), Technical Chemistry I, UDE
07/2017 – 06/2020	Scientific employee, DFG-funded project, in cooperation with the University Hamburg (Prof. Wolfgang Parak), Technical Chemistry I, UDE, Prof. Stephan Barcikowski
11/2016 – 06/2017	Scholarship, Technichal Chemistry, UDE
01/2013 – 11/2015	Student assistant, Technical Chemistry I, UDE

Academic education and scientific degrees:

02/2022	PhD with honors (Dr. rer. Nat mit Auszeichnung), Technische Chemie, Universität Duisburg-Essen, Supervisor: Prof. habil. Dr.-Ing. Stephan Barcikowski
11/2016 – 02/2022	Doctoral candidate, University Duisburg-Essen
10/2014 – 09/2016	Studies of Chemistry, University Duisburg-Essen, Degree: Master of Science
10/2009 – 09/2014	Studies of Chemistry, University Duisburg-Essen, Degree: Bachelor of Science
10/2007 – 01/2009	Teacher training student, University Duisburg-Essen
08/2005 – 03/2007	Secondary school, Willy Brandt comprehensive school, Mülheim a. d. Ruhr, Degree: University-Entrance Diploma (Abitur)

Research stays abroad:

06 – 07/2021	Paul Scherrer Institute (PSI), Topic: surface chemistry effects on electron-phonon coupling at liquid-metal interfaces. Collaboration with Prof. Anton Plech (KIT) and Prof. Sokolowski-Tinten (UDE)
09 – 11/2019	Stanford linear accelerator center (SLAC). Topic: Determination of the e-ph coupling constant of gold colloids in different colloidal environments. Collaboration with Prof. Siegfried Glenzer (Head of HEDS at SLAC)
11/2018	European Synchrotron Radiation Facility. Topic: In situ spectroscopy during laser ablation of Zn in liquids. Collaboration with Prof. Anton Plech (KIT)
09/2018	European Synchrotron Radiation Facility. Topic: Investigation of the structural kinetics of ps laser fragmentation of suspended gold spheres. Collaboration with Prof. Anton Plech (KIT)

Awards and recognitions:

05.09.2022	WLT Prize of the Wissenschaftliche Gesellschaft Lasertechnik e.V for excellent achievements in the field of laser science
21.06.2021	Third place in the “from lab to market challenge” of chemstars.nrw
07/2022 – 06/2023	Scholarship of the Faculty of Chemistry, University Duisburg-Essen, for excellent female, young researcher
06/2022	Humboldt meets Leibniz travel and accommodation grant
2021	First place of the business idea competition of the ‘Center for Start-up, Innovation, and Entrepreneurship at the University of Duisburg-Essen in the innovation area ‘chemistry-based innovations.’
2021	First place of the ANGEL decennial award for the best scientific image
2020	PCCP Editor´s choice, ‘hot article’, for the article Ziefuß et al.: In situ structural kinetics of picosecond laser-induced heating and fragmentation of colloidal gold spheres, PCCP, 2019, 22, 4993-5001
2020	Journal cover: “Origin of laser-Induced Gold Surface Oxidation and Charge Density, and Its Role in Oxidation Catalysis, J. Phys. Chem. C, 2020, 124, 38”
09 – 11/2019	DAAD scholarship for doctoral students
06/2018	Travel scholarship of the Faculty of Chemistry, UDE, for oral contribution to the 5th int. ANGEL conference, Lyon, France

International conference contributions:

A. R. Ziefuss, Synthesis, Surface chemistry, and application of fully inorganic gold nanoclusters by pulsed laser fragmentation in liquids, August 2022, 12th CIRP conference on photonic technologies (LANE 2022) (invited oral presentation)

A. R. Ziefuss, S. Reich, S. Reichenberger, M. Levantino, S. Barcikowski, A. Plech, Mechanism study of picosecond laser fragmentation by in situ X-ray scattering, June 2021, online conference, 5th int. Angel conference (poster presentation)

A. R. Ziefuss, C. Rehbock, S. Reichenberger, S. Barcikowski, Impact of electrolytes on particle size distribution of fluorescent gold nanoclusters fabricated by ns-pulsed fragmentation in liquids, June 2021, online conference, 5th int. Angel conference (poster presentation)

A. R. Ziefuss, T. Steenbock, D. Benner, A. Plech, J. Göttlicher. M. Teubner, B. Grimm-Lebsanft, C. Rehbock, C. Comby-Zerbino, R. Antoine, D. Amans, I. Chakraborty, G.Bester, M. Nachev, B. Sures, M. Rübhausen, W. J. Parak, S. Barcikowski, Surface charge density effects on the fluorescence of laser-generated and fully inorganic, different-sized gold nanocluster, June 2021, online on-demand, The 22nd International Symposium on Laser Precision Microfabrication (oral presentation)

A. R. Ziefuss, C. Rehbock, S. Reichenberger, I. Chakraborty, H. Huang, L. V. Zhigilei, W. J. Parak, S. Barcikowski: Fragmentation of colloidal gold nanoparticles with high-intensity laser pulses, 7th. High-power Laser Workshop, September 2019, Stanford, USA (poster presentation)

A. R. Ziefuss, S. Reichenberger, C.Rehbock, I. Chakraborty, W. Parak, and S. Barcikowski: Synthesis of ultra-small gold nanoparticles by nanosecond-pulsed laser fragmentation in liquids - impact of laser intensity and electrolytes on particle size distributions, Mai 2019 LAMP conference, Hiroshima, Japan (oral presentation)

A. R. Ziefuss, S. Reichenberger, C.Rehbock, I. Chakraborty, M.Gharib, W. Parak, and S. Barcikowski: Nanosecond laser fragmentation of colloidal gold nanoparticles with high-intensity nanosecond pulses is driven by a single step fragmentation mechanism, June 2018, 5th int. Angel conference, Lyon, France (oral presentation)

Publication activities

Guest editorship

1. Special issue on 'Advances in Pulsed Laser Synthesis of Nanoparticles in Liquids', Science China Physics, Mechanics & Astronomy, Guest Editor (with Prof. Zhigilei, Virginia, Prof. Barcikowski, UDE), 2022
2. Special issue on 'Laser-Enabled Synthesis and Processing of Nanoparticles in Liquids', JPCC, Guest Editor (with Prof. Tibbets, Virginia, Prof. Barcikowski, UDE), 2024

Peer-Reviewed articles

1. Mustafa Gharib, A. J. Yates, Stephen Sanders, Johannes Gebauer, Sebastian Graf, Anna Rosa Ziefuß, Günther Kassier, Christoph Rehbock, Stephan Barcikowski, Horst Weller, Alessandro Alabastri, Peter Nordlander, Wolfgang J. Parak, Indranath Chakraborty, Golden Plasmophores with Tunable Photoluminescence and Outstanding Thermal and Photothermal Stability, Advanced Optical Materials, 2024
2. M. Spellauge, M. Tack, R. Streubel, Matthias Miertz, S. Reichenberger, S. Barcikowski, H. P. Huber, and A. R. Ziefuss, Photo-Mechanical Laser Fragmentation of IrO2 Microparticles for the Synthesis of Active and Redox-sensitive Colloidal Atom clusters, SMALL, 2023, 19, 10, 2206485
3. Shabbir Tahir, Joachim Landers, Soma Salamon, David Koch, Carlos Doñate-Buendía, Anna R. Ziefuß, Heiko Wende, Bilal Gökce, Advanced Engineering Materials, 25, 20,2300245
4. A. Plech, A. R. Ziefuss, M. Levantino, R. Streubel, S. Reich, S. Reichenberger, Low efficiency of laser heating of gold particles at the plasmon resonance – an X-ray calorimetry study, ACS Photonics, 2022, 9 ,9, 2981 - 2990
5. I. M. Kusoglu, P. Vieth, S. Heiland, F. Huber, A. Lüddecke, A. R. Ziefuss, A. Kwade, M. Schmidt, M.Scharper, S. Barcikowski, G. Grundmeier, Microstructure and corrosion properties of PBF-LB produced carbide nanoparticles additivated AlSi10Mg parts, Procedia CIRP, 2022, 111, 10-13
6. A. R. Ziefuss, M. Willeke, M. Miertz, A. Heinemann, C. Rehbock, Influence of Pt alloying on the fluorescence of fully inorganic, colloidal gold nanoclusters, ChemPhysChem, 2022, 6, 19
7. A. R. Ziefuss, T. Hupfeld, S. W. Meckelmann, M. Meyer, O. J. Schmitz, W. Kaziur-Cegla, L. K.Tintrop, T. C. Schmidt, B. Gökce, S. Barcikowski, Ultrafast cold-brewing of coffee by picosecond-pulsed laser extraction, 2022, 6, 19
8. S. Reich, Y. Klügl, A. R. Ziefuss, R. Streubel, J. Göttlicher, A. Plech, Speciation in nanosecond laser ablation of zinc in water, Sci. China Phys. Mech., 2022, 65, 274205
9. M. Kusoglu, F. Huber, C. Donate-Buendia, A. R. Ziefuss, B. Gökce, Jan. T. Sehrt, A. Kwade, M. Schmidt, S. Barcikowski, Nanoparticle Additivation Effects on Laser Powder Bed Fusion of Metals and Polymers—A Theoretical Concept for an Inter-Laboratory

Study Design All Along the Process Chain, Including Research Data Management, Materials, 2021, 14, 17, 4892

10. A. R. Ziefuss, T. Steenbock, D. Benner, A. Plech, J. Göttlicher, M. Teubner, B. Grimm-Lebsanft, C. Rehbock, C. Comby-Zerbino, R. Antoine, D. Amans, I. Chakraborty, G. Bester, M. Nachev, B. Sures, M. Rübhausen, W. J. Parak, S. Barcikowski, Photoluminescence of Fully Inorganic Colloidal Gold Nanocluster and Their Manipulation Using Surface Charge Effects, 2021, 33, 31, 21015493

11. Y. Zeng, S. Havenridge, M. Gharib, A. Baksi, K. L. D. M. Weerawardene, A. R. Ziefuss, C. Strelow, C. Rehbock, A. Mews, S. Barcikowski, M. M. Kappes, W. J. Parak, C. M. Aikens, I. Chakraborty, Impact of Ligands on Structural and Optical Properties of Ag29 Nanoclusters, J. Am. Chem. Soc., 2021, 134, 25

12. L. Zhu, Y. Zeng, M. Teubner, B. Grimm-Lebsanft, A. R. Ziefuss, C. Rehbock, M. A. Rübhausen, S. Barcikowski, W. J. Parak, I. Chakraborty, Surface engineering of Gold Nanoclusters Protected with 11- Mercaptoundecanoic Acid for Photoluminescence Sensing, ACS Appl. Nano Mater., 2021, 4, 3, 3197-3203

13.. A. R. Ziefuss, I. Haxhiaj, S. Müller, M. Gharib, O. Gridina, C. Rehbock, I. Chakraborty, B. Peng, M. Muhler, W. J. parak, S. Barcikwoski, S. Reichenberger: origin of laser-Induced Gold Surface Oxidation and Charge Density, and Its Role in Oxidation Catalysis, J. Phys. Chem. C, 2020, 124, 38

14. S.Reich, J. Göttlicher, A.R. Ziefuss, R. Streubel, A. Letzel, A. Menzel, O. Mathon, S. Pascarelli, T. Baumbach, M. Zuber, B. Gökce, S. Barcikowski, A. Plech: In situ speciation and spatial mapping of Zn products during laser ablation in liquids (PLAL) by combined synchrotron methods, submitted to Nanoscale, 2020, 12, 14011-14020

15. A.R. Ziefuss, S. Reich, S. Reichenberger, M. Levantino, A. Plech: In situ structural kinetics of picosecond laser-induced heating and fragmentation of colloidal gold spheres, PCCP, 2019, 22, 4993-5001

16. L. Zhu, M. Gharib, C. Becker, Y. Zeng, A.R. Ziefuss, L. C., A.M. Akilany, C. Rehbock, S. Barcikowski, W.J. Parak, I. Chakraborty: Synthesis of Fluorescent Silver Nanoclusters: Introducing Bottom-Up and Top-Down Approaches to Nano chemistry in a Single Laboratory Class, Chem. Educ. 2019, 97,1, 239-243

17. A. R. Ziefuss, C. Rehbock, S. Barcikowski: Synergism between specific halide anion and pH effects during nanosecond laser fragmentation of ligand free gold nanoparticles, Langmuir, 2019, 35, 6630-6639

18. F. Waag, Y. Li, A. R. Ziefuss, E. Bertin, M. Kamp, V. Duppel, G. Marzun, L. Kienle, S. Barcikowski, B. Gökce: Scalable, kinetically-controlled laser-synthesis of colloidal non-noble high-entropy alloy nanoparticles, JPCC, 2019, 9, 18547-18558

19. R. Dinkel, J. Jakobi, A. R. Ziefuss, S. Barcikowski, B. Braunschweig, W. Peukert: Role of Citrate and NaBr at the Surface of Colloidal Gold Nanoparticles during Functionalization, JPCC, 2018, 122, 27383- 27391

20. A. R. Ziefuss, S. Reichenberger, C. Rehbock, I. Chakraborty, M. Gharib, W. Parak, S. Barcikowski: Laser fragmentation of Colloidal Gold Nanoparticles with High-Intensity Nanosecond Pulses is Driven by a Single-Step Fragmentation Mechanism with a Defined Educt Particle-Size Threshold, JPCC, 2018, 122, 22125-22136

21. Letzel, M. Santoro, J. Frohleiks, A. R. Ziefuss, S. Reich, A. Plech, E. Fazio,F. Neri, S. Barcikowski,B. Gökce: How the re-irradiation of a single ablation spot affects cavitation

bubble dynamics and nanoparticles properties in laser ablation in liquids, Appl. Surf. Sci., 2018, 473

22. R. Manicini, L. Gamrad, D. Werner, D. Thedemann, U. Taylor, A. R. Ziefuss, .Rehbock, S. Klein, W. Kues. S. Barcikowski, D. Rath. Triplex-hybridizing bioconjugated gold nanoparticles for specific Y-chromosome sequence targeting of bull spermatozoa, Analyst, 2017, 142, 2020

23. M. Lau, A. R. Ziefuss, T. Komossa, S. Barcikowski, Inclusion of supported gold nanoparticles into their semiconductor support, PCCP, 2015, 17, 29311-29318