

MERTOL GÖKELMA

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Izmir Institute of Technology
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Education

10/2013-09/2017 Doctoral Degree, Research and Teaching Assistant at 'IME' Institute of Process Metallurgy and Metal Recycling, RWTH Aachen University, Germany

Title of the dissertation: "Settling and Agglomeration Behaviour of Non-metallic Inclusions in Aluminium Melts"

10/2011-10/2013 M. Sc. Degree Metallurgical Engineering at RWTH Aachen University

Title of the master thesis: "Settling and Agglomeration Behaviour of Non-metallic Inclusions in Aluminium Melts"

Title of the study integrated thesis: "Hydrometallurgical Recovery of Gold from Mining and Flotation Dumps"

09/2005-02/2010 B.Sc. Degree at Dokuz Eylül University, İzmir/Turkey

Title of the bachelor thesis: "Investigation on Selective Distillation of Black Dross and the Potential of Minimizing Magnesium Losses through Optimization of Salt Fluxes", written during the Erasmus program at IME/RWTH Aachen University

Academic Experience

03/2023 Assist. Prof. and Head of the Process Metallurgy Laboratory at the Department of Materials Science and Engineering

05/2020 TÜBİTAK 2232 Outstanding Researchers Fellow (financed by the Ministry of Industry and Technology – Turkey)

10/2017-04/2020 Post-Doctoral Researcher at the Department of Materials Science and Engineering, Norwegian University of Science and Technology, Norway

10/2014-09/2018 Scientific Assistant at 'IME' Institute of Process Metallurgy and Metal Recycling - RWTH Aachen University

01/2010-04/2013 Student Researcher at 'IME' Institute of Process Metallurgy and Metal Recycling - RWTH Aachen University

Teaching

- **Refining and Recycling of Metals, B. Sc, M. Sc, Ph.D. course at Norwegian University of Technology and Science 2018**
- **Metallurgie und Eigenschaften von Aluminiumschmelzen, M. Sc. Course at RWTH Aachen University 2018-ongoing**
- **Extractive Metallurgy and Mineral Processing, B.Sc. course at Izmir Institute of Technology 2021-ongoing**
- **Extractive Metallurgy of Non-ferrous Metals B.Sc. course at Izmir Institute of Technology 2022-ongoing**

Conference Organisation and Editorship

Organizer and editor of REWAS 2019 – Manufacturing the Circular Materials Economy – at TMS (The Minerals, Metals & Materials Society) 2019 in San Antonio Texas
<https://www.springer.com/gp/book/9783030103859>

Organizer and co-leader of REWAS 2022 — at TMS 2022 in Anaheim California
https://www.tms.org/tms2022/downloads/REWAS_2022_Flyer1.pdf

Co-editor of TMS Light Metals 2019
<https://www.springer.com/gp/book/9783030058630>

Symposium organizer at EUROMAT 2023 in Frankfurt, Germany
<https://euromat2023.com/areas/h-materials-for-circularity-and-sustainability#session-eb6896eb-896c-466e-b7e5-f6c613dc3091>

Publications

2023

- P. Yörük, M. Gökelma, B. Derin, Effect of compaction and fluoride content on the remelting efficiency of pure magnesium chips, Canadian Metallurgical Quarterly, 2023, <https://www.tandfonline.com/doi/full/10.1080/00084433.2023.2262189>
- Y. Çapkın, M. Gökelma, Characterization and Separation Behavior of Multi-layers in Aluminum-Rich Waste Pharmaceutical Blisters, JOM, 2023, <https://link.springer.com/article/10.1007/s11837-023-06072-2>
- Y. Çapkın, M. Gökelma, An Investigation on Inclusions Forming During Remelting of Aluminum and Magnesium Scraps Under a Salt Flux, JOM, 2023, <https://link.springer.com/article/10.1007/s11837-023-06070-4>
- M. Gökelma, R. Önen Tüzgel, A.Y. Kaya, O. Özaydın, A Study on Recyclability of AlSi7Mg0.3 Machining Waste, Black Sea Journal of Engineering and Science 6 (3), 240-244, <https://doi.org/10.34248/bsengineering.1282159>
- A. Habibzadeh, M.A. Kucuker, M. Gökelma, Review on the Parameters of Recycling NdFeB Magnets via a Hydrogenation Process, ACS Omega 2023, 8, 20, 17431–17445, <https://doi.org/10.1021/acsomega.3c00299>

- C. Li, M. Gökkelma, T. Dang, J. Huang, C. Huang, J. Li, B. Friedrich, Assessment of Melt Cleanliness of Secondary 5000 Aluminum Alloy Via Non-metallic Inclusions Characterization, Metallurgical and Materials Transactions B, 2023, <https://doi.org/10.1007/s11663-022-02710-3>
- İ.Y. Çapkın, M. Gökkelma, A review on characterization and recyclability of pharmaceutical blisters, Cleaner Waste Systems, Volume 4, April 2023, <https://doi.org/10.1016/j.clwas.2023.100082>
- C. Li, T. Dang, M. Gökkelma, S. Zimmermann, J. Mitterecker, B. Friedrich, Assessment of Separation and Agglomeration Tendency of Non-metallic Inclusions in an Electromagnetically Stirred Aluminum Melt
https://doi.org/10.1007/978-3-031-22532-1_120

2022

- C. Fleuriault, M. Gokelma, A. Anderson, E. A. Olivetti, REWAS 2022: Developing Tomorrow's Technical Cycles, Journal of Sustainable Metallurgy, 7, pp: 406–411 (2021) <https://doi.org/10.1007/s40831-021-00378-8>
- M. C. Souley Garba, E. Kaya, M. Gökkelma, A. Seyrankaya (2022) Investigating triple superphosphate for lead removal from aqueous solutions, Journal of Environmental Science and Health, Part A, 57:3, 167-173, <https://doi.org/10.1080/10934529.2022.2044221>
- A. Lazou, D. Nilssen, M. Gökkelma, M. Wallin, G. Tranell (2022). Pre-study of the Dissolution Behavior of Silicon Kerf Residue in Steel, in REWAS 2022: Developing Tomorrow's Technical Cycles (Volume I). The Minerals, Metals & Materials Series. Springer, Cham. https://doi.org/10.1007/978-3-030-92563-5_15

2021

- M. Gökkelma, T. S. Aarnæs, J. Maier, M. F. Renkel, K. E. Ekstrøm, B. Friedrich, G. Tranell, Behaviour of Al₄C₃ Particles during Flotation and Sedimentation in Aluminium Melts, Metallurgical and Materials Trans. B 2021 <https://doi.org/10.1007/s11663-020-02049-7>
- A. Obali, K. A. Dilek, S. Akdi, D. Kavrar Ürk, M. Gokelma, The Influence of the Casting Speed in Horizontal Continuous Casting of Aluminium Alloy EN AW 6082 Light Metals 2021. The Minerals, Metals & Materials Series. Springer https://doi.org/10.1007/978-3-030-65396-5_119
- A. Vallejo-Olivares, H. Philipson, M. Gökkelma, H. J. Roven, T. Furu, A. Kvithyld, and G. Tranell, Compaction of Aluminium Foil and Its Effect on Oxidation and Recycling Yield, Light Metals 2021. The Minerals, Metals & Materials Series. Springer https://doi.org/10.1007/978-3-030-65396-5_133
- M. Gökkelma, A. Vallejo-Olivares, G. Tranell, Characteristic properties and recyclability of the aluminium fraction of MSWI bottom ash, Waste Management, Volume 130, 2021, Pages 65-73, ISSN 0956-053X, <https://doi.org/10.1016/j.wasman.2021.05.012>.

2020

- M. Gökkelma, K.E. Einarsrud, G. Tranell et al. Shape Factor Effect on Inclusion Sedimentation in Aluminum Melts. Metallurgical and Materials Trans. B 2020 <https://doi.org/10.1007/s11663-020-01769-0>
- M. Gökkelma, F. Diaz, I.E. Öner, B. Friedrich, G. Tranell, 2020, An Assessment of Recyclability of Used Aluminium Coffee Capsules. In: Tomsett A. (eds) Light Metals 2020. The Minerals, Metals & Materials Series. Springer, Cham https://doi.org/10.1007/978-3-030-36408-3_149

2019

- M. Gökelma, T. S. Aarnæs, J. Maier, B. Friedrich, G. Tranell, Behaviour of Aluminium Carbide in Al-melts during Re-melting, in Light Metals 2019, San Antonio, USA https://doi.org/10.1007/978-3-030-05864-7_126
- M. Gökelma, I. Meling, E. Soylu, A. Kvithyld, G. Tranell, A Method for Assessment of Recyclability of Aluminum from Incinerated Household Waste, in Light Metals 2019, San Antonio, USA https://doi.org/10.1007/978-3-030-05864-7_168
- C. Li, X. Zhang, M. Gökelma, W. Stets, B. Friedrich, A Quick Sampling Method for Identification of Particle Distribution in the Depth Direction of Al-melt, EMC 2019 – European Metallurgical Conference, Dusseldorf, Germany

2018

- M. Gökelma, D. Celik, O. Tazegul, H. Cimenoglu, B. Friedrich, Characteristics of Ti6Al4V Powders Recycled from Turnings via the HDH Technique, Metals - Open Access Metallurgy Journal 8(5):336 <https://doi.org/10.3390/met8050336>

2016

- M. Gökelma, D. Latacz and B. Friedrich, (2016) A Review on Prerequisites of a Set-Up for Particle Detection by Ultrasonic Waves in Aluminium Melts. Open Journal of Metal, 6, 13-24. <https://doi.org/10.4236/ojmetal.2016.61002>
- M. Gökelma, A. Birich, S. Stopic, B. Friedrich, Review on Alternative Gold Recovery Reagents to Cyanide, Journal of Materials Science and Chemical Engineering, 2016, 4, 8-17 <https://doi.org/10.4236/msce.2016.48002>

2015

- M. Gökelma, J. Morscheiser, M. Badowski, T. Dang, P. L. Brun, S. Tewes, Observation on inclusion settling by LiMCA and PoDFA Analysis in Aluminium Melts, International Aluminium Journal, Vol. 91, April 2015, 56- 61
- M. Badowski, M. Gökelma, J. Morscheiser, T. Dang, P. L. Brun, and S. Tewes, (2015) Study of Particle Settling and Sedimentation in a Crucible Furnace, in Light Metals 2015 (ed M. Hyland), John Wiley & Sons, Inc., Hoboken, NJ, USA. <https://doi.org/10.1002/9781119093435.ch162>
- M. Gökelma, P. Le Brun, T. Dang, M. Badowski, J. Morscheiser, B. Friedrich, S. Tewes, Assessment of Settling Behavior of Particles with Different Shape Factors by LiMCA Data Analysis, in Light Metals 2015, Nashville, USA https://doi.org/10.1007/978-3-319-48251-4_143

Memberships

Chair of Recycling and Environmental Technologies Committee of The Minerals, Metals & Materials Society, USA 2022-2024

Member of Aluminum Committee of The Minerals, Metals & Materials Society, USA

Member of National Advisory Committee of the International Metallurgy and Materials Congress, Istanbul

Member of National Advisory Committee of the Turkish Foundry Association – Foundry Congress

Member of the Scientific Committee of the International Aluminium Symposium - ALUS

Language Competencies

Turkish (Native)

English (Fluent)

German (Fluent)