

S. Erik Offerman

Associate professor

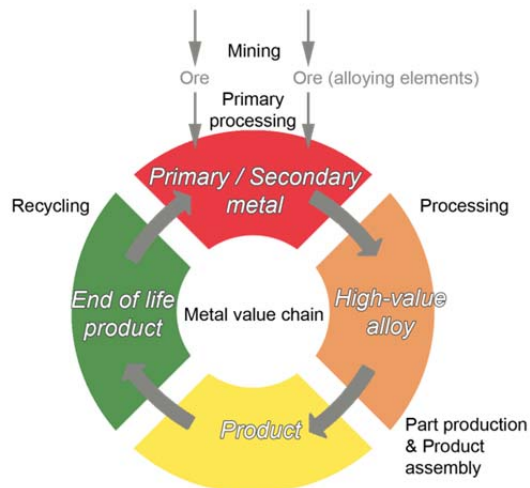


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Research interests:
Design, processing, and closing-the-loop of metals and alloys for a transition to a (more) resource-efficient and circular economy;
Critical Raw Materials;
Substitution; Alloy development for recycling; Impurities.

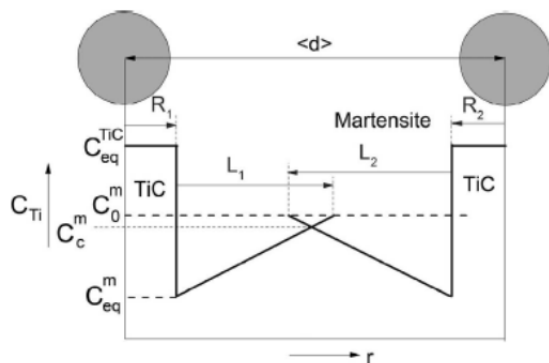
Resource-Efficient Metal and Alloy Cycles

Recent Research activities:
Design, processing, and closing-the-loop of metals and alloys are essential for a transition to a (more) resource-efficient and circular economy.

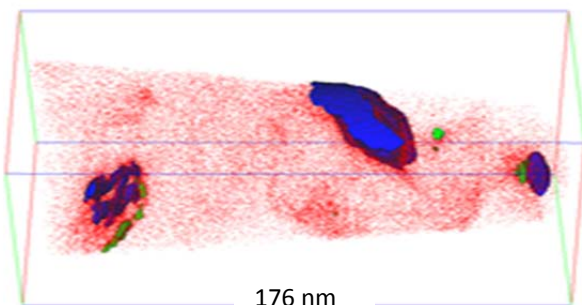


Schematic diagram of a circular metal value chain.

Focus in 2015: Effects of micro-alloying on the evolution of the microstructure and mechanical properties of fastener steel during tempering.



Model for growth of nanometer-sized TiC-precipitates (solid circles) in martensitic steel showing the concentration profile of Titanium [2].



Martensitic steel at the nanometer-scale: carbon atoms (red), cementite (blue), and alloy carbides (green) [2].

Key publications:

- [1] C. Emmy I. C. Öhlund, Dennis den Ouden, Jonathan Weidow, Mattias Thuvander and S. Erik Offerman, *Modelling the evolution of multiple hardening mechanisms during tempering of Fe-C-Mn-Ti martensite*, ISIJ International, 55 (2015), No. 4, pp. 883-892.
- [2] Co-promotor of thesis by C. Emmy I. C. Öhlund, *Tempering of martensitic steel for fasteners: Effects of micro-alloying on microstructure and mechanical property evolution* (2015), ISBN: 978-94-6186-519-9.

Other Achievements:

- [1] Sawamura award 2015 of the iron and steel institute of Japan (ISIJ) for the paper: C. Emmy I.C. Öhlund, Jonathan Weidow, Mattias Thuvander, and S.Erik Offerman, *Effect of Ti on evolution of microstructure and hardness of martensitic Fe-C-Mn steel during tempering*, ISIJ International, Vol. 54 (2014), No. 12, pp. 2090-2899.
- [2] Chairman Western CLC of the European Institute of Innovation & Technology (EIT) on Raw Materials.
- [3] Editorial board member for Scientific Reports of Nature publishing group.
- [4] Board member of the Leiden-Delft-Erasmus Centre for Sustainability