

# Colloquium

## Materials and Sustainability: Insights from different system perspectives

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### Abstract

Mankind's global natural resource extraction currently is at more than 90 billion tons per year and bound to increase further. In light of the different pending environmental crises, a sustainable management of human resource uses is imperative. Intervention options exist at all stages of the material life cycle, including the mining, manufacturing, use, and recycling stages. The lecture starts with an overview of the vast spectrum of sustainable development strategies related to materials. It then highlights the differences between the material-, product-, material cycle-, and society-centered perspectives on sustainability. An outlook on how these different perspectives can trigger new research and policy design is given.

### Literature

Industrial ecology in integrated assessment models (2017 – [link](#))

Global Resources Outlook 2019 – Summary for Policymakers ([link](#))

### Brief Bio

Stefan Pauliuk is an expert for method development to assess sustainable development strategies. His work includes supply chain analysis, scenario modelling for sustainable material futures, and indicator development for resource efficiency and circular economy strategies. Together with colleagues he estimated current in-use stocks of steel and developed scenarios for material efficiency in the future steel cycle that show the substantial greenhouse gas emissions mitigation potential of material efficiency. He is assistant professor for sustainable material and energy flow management at the Faculty for Environment and Natural Resources, University of Freiburg, Germany, where he leads the research group "Industrial Ecology Freiburg".

27 November, 2019, 15:00-16:15 p.m.

FIT, Georges-Köhler-Allee 105, 79110 Freiburg

Seminar room, ground level