



Considerations for the Development and Scaling of Bulk Metallurgical Processes

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Abstract

The research for novel metallurgical processes are a key step to the decarbonization of metals supply chains. However, often lost in the research of these technologies are considerations that impact the full scale development. This talk seeks to delve into industrial scale considerations of technologies, focusing on energy consumption patterns, water utilization, and supply chain handling that impact full scale technological industrialization. Impacts will be examined from a CAPEX and OPEX perspective as well as taking into account how operations have to be structured to handle these impacts.

Biography

Dr. Thomas Villalón Jr. is a materials scientist and engineer, currently serving as the Chief Technology Officer and Co-Founder of Phoenix Tailings, where he has played a pivotal role in developing innovative technologies for extracting value from mining tailings in an economically sustainable and environmentally friendly manner. Previously, at Digital Alloys, Dr. Villalón contributed to research in additive manufacturing, leading projects on novel microstructures and thermophysical properties. Holding a Ph.D. in Materials Engineering from Boston University and a BSc from MIT, his academic journey includes research on electrochemical refinement of reactive metal oxides into pure metals. Dr. Villalón's multifaceted expertise, coupled with his leadership roles and academic achievements, underscores his desire to impact the realms of materials engineering and metals processing.