

15<sup>th</sup> Annual Congress on

# MATERIALS RESEARCH & TECHNOLOGY

February 19-20, 2018 | Paris, France



## Joseph W Newkirk

Missouri University of Science & Technology, USA

### Creating the materials of tomorrow

Many new technologies have been introduced and most were enabled by new materials. What future technologies are awaiting new materials and how do we develop them? Is it possible to create materials that will provide a leap in performance compared to existing materials, rather than just an incremental change? What can we learn from previous developments? This presentation will look briefly at the history of the impact of structural materials development on our culture and society. In addition, the lack of sufficient quantities of key elements will be shown to have a devastating effect on societies. Drawing from lessons learned from this review, the possibility of new culture shacking technologies will be discussed. Today the pace of technological change is moving faster than the development of new materials and many initiatives are designed to improve the rate of introduction of new materials. However, a vision as to what the materials needs of the future are required in order to direct the development required. The requirements of these new technologies are basically hindered by the lack of compact power sources and light-weight structural materials. Some solutions to these dramatically higher performance materials will be suggested, with the goal of stimulating new discussions and research into material systems.

### Biography

Joseph W Newkirk is a Professor of Materials Science & Engineering at the Missouri University of Science and Technology and the current President of Alpha Sigma Mu. He is a Fellow of both Alpha Sigma Mu and ASM International. His research interests are mostly concerned with developing and fabricating high performance metallic materials.

[jnewkirk@mst.edu](mailto:jnewkirk@mst.edu)

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