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Review of Ongoing Research in the Advanced Manufacturing and Mechanical Reliability Center (AMMRC) at Case Western Reserve University

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Abstract: This seminar will provide a review of recent and ongoing research works conducted by the speaker and students/collaborators in the Advanced Manufacturing and Mechanical Reliability Center (AMMRC) at CWRU. After a brief review of AMMRC capabilities, the speaker will provide a summary of a few ongoing individual and team research projects in the separate areas of Metal Additive Manufacturing (AM) and Environmental Effects on Fracture of Al-Mg alloys used in a variety of naval applications. AM projects include both powder bed fusion (PBF) as well as directed energy deposition (DED) along with advanced mechanical testing, quantitative fractography, and tomography. The studies on environmental cracking in Al-Mg alloys will include microscopy, extended laboratory aging studies, tomography, field retrieved studies, and possible remediation approaches.

Biography: John J Lewandowski is Distinguished University Professor, Arthur P Armington Professor of Engineering II, and Director of the Advanced Manufacturing and Mechanical Reliability Center (AMMRC) <http://ammrc.case.edu> at Case Western Reserve University. He has joint appointments in Materials Science and Engineering, and Mechanical and Aerospace Engineering. BS/ME/PhD were earned at Carnegie Mellon University in Metallurgical Engineering and Materials Science where he was a Hertz Foundation Graduate Fellow. He was then NATO/NSF Postdoctoral Fellow and, more recently, Overseas Fellow at Churchill College, Cambridge University. Publications and presentations exceed 350 and 1050, respectively, with a current h-index > 65. Research and teaching interests include processing/structure/property relationships in advanced materials systems for aerospace, automotive, biomedical, and defense applications. Recent work has focused on environmental effects on fracture, metallic glasses, and HEA's, as well as additive- and other advanced-manufacturing techniques. He has received a number of teaching awards while his individual and collaborative research with students and colleagues has also received various research awards.