

## OUR NEXT MEETING DAY October 29<sup>th</sup>, 2020

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1) Laser cladding is an advanced repair technology that is seeing increased use in mining and downhole drilling applications. This state-of-the-art technology provides tailored surface modification for wear and corrosion protection as well as dimensional repairs for high value industrial components. As a powder fed process, the success of laser cladding hinges on the ability of the molten pool to capture the process powders. Understanding the relationships between key process parameters such as laser power, powder feed rate, and travel speed on this mass capture efficiency (colloquially referred to as catchment efficiency) is of great interest to practitioners who seek to optimize the process and reduce waste. This presentation introduces a methodology for predicting the catchment efficiency from a fundamental understanding of the heat and mass transfer aspects of this complex, multiphysics process. The model implements