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STEVEN ADLER

OBJECTIVE

My recent research and development has been focused on the synthesis of spherical Platinum Group & Refractory Group metal powders by RF Plasma in conjunction with the development of operating parameters required for Powder Bed Additive Manufacturing technologies.

I am currently seeking new opportunities to collaborate with an advanced manufacturing team and contribute to the promotion of serial production in metal Additive Manufacturing.

For details on my 24 years in Additive Manufacturing Research & Development and the production of over 50,000 Additively Manufactured designs, visit www.a3dm.com/about

RECENT ACHIEVEMENTS

AM PRODUCT DEVELOPMENT (DfAM)

NASA and USAF are exploring options for high thrust micro-propulsion systems to enable a new range of high-value, low-cost missions. Of particular interest are systems that will provide the capability in environments beyond Low Earth Orbit, including low-gravity environments such as near a comet or asteroid.

In support of NASA's Green Propellant Infusion Mission, A3DM has been developing an AF-M315E catalyst bed for 1N SmallSAT thrusters that utilizes a unique additive manufacturing strategy, The design and process strategy will enhance the performance and lifetime over the SOA while minimizing iterative development and manufacturing costs in serial production.

MICRO-LPBF PARAMETER DEVELOPMENT – TRUMPF TruPRINT 1000

In 2017 TRUMPF and A3DM Technologies entered a collaboration agreement for the research and development of specialty metal powders and LPBF parameters for precision applications. As part of the agreement, A3DM Technologies had a TRUMPF TruPrint 1000 with a 30 micron focal spot size installed in their research facility located in Burlington, VT.

A3DM development of Single Vector Scanning (SVS) AM strategies has provided significant advances in Platinum Group Metal Catalysis potential for material science applications and the NASA Green Propellant Infusion Mission program. Component designs for the thermal manufacture of glass products have also been developed for analysis.

The following materials have been studied;

Iridium	Platinum / Ruthenium Alloy
Platinum / Rhenium Alloy	Platinum / Rhodium Alloy

A3DM research and development for AM laser parameters in the refractory metals group has provided insight for new designs in radiation collimators for both energy and medical applications. Tantalum and Niobium AM laser parameters developed by A3DM have also been explored for both medical implant and SmallSAT thruster geometries.

The following materials have been studied;

CP Tungsten	CP Tantalum	C103 Niobium Alloy

RF PLASMA SPHEROIDIZATION RESEARCH

A3DM provides plasma research campaigns for US government laboratories and industrial clients interested in plasma powder process development. Plasma research campaigns have been considered for Bulk Metallic Glass Alloys, Rare Earth Elements, as well as Carbide, Oxide, and Nitride materials (Boron, Tungsten, Silicon, etc)

Recent plasma research campaigns have been performed at A3DM to produce micron powders for Additive Manufacturing using the following transition metals;

Iridium	Tantalum	Rhenium
Platinum	Niobium	Molybdenum
Ruthenium	Tungsten	Silicon

ADDITIONAL COLLABORATIVE RESEARCH

- USN SURFWARCEN - CRADA - 316L Plasma Powder Reconditioning
- NSF / DoE - Plasma Powder Reconditioning for AM (Application Pending)
- Drexel University – Soft Magnetic Composite (SMC) Parameter Development
- University of Louisville - Plasma Spheroidization of Asteroid Regolith Simulants
- PNL / DoE - Plasma Spheroidization of Gadolinium for magnetocaloric refrigeration

PROFESSIONAL SKILLS

- Design for Additive Manufacturing (DfAM)
- Laser Powder Bed Fusion Parameter Development (LPBF)
- Post Processing of LPBF Designs (MMP, Mass ISO, HIP)
- NDT for Qualification (MicroCT, Laser, CMM, etc)
- Metallography, RoboMat, Microstructure Analysis
- IC Plasma Powder Metallurgy (Atomization and Spheroidization)
- Laser and DLP Stereolithography
- Drop on Demand Multi-Material Jetting
- Ionic AM Process for Precious Metals

AM HISTORY

A3DM TECHNOLOGIES CORP, FOUNDER

- 01/96 - Current

SAENT E-FORMING COMPANY, FOUNDER

- 01/87 – 01/96