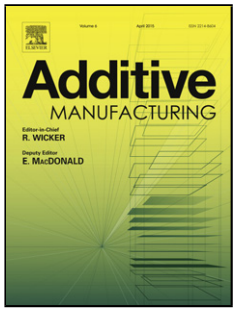

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Selective laser melting of rare earth element Sc modified aluminum alloy: Thermodynamics of precipitation behavior and its influence on mechanical properties

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Highlights

- Selective laser melting was utilized to fabricate Sc and Zr modified Al-Mg alloy.
- Different precipitation behavior between various scan speeds are characterized by SEM and TEM.
- Significant improvement of hardness is evaluated and explained under a relative low scan speed.
- Relationships between scan speed, convection flow, precipitate distribution, and the resultant mechanical properties are elucidated.