Contribution ID: **94** Type: **not specified**

Influence of Selective Laser Melting strategies and post treatment on the residual stresses and microstructure of Alloy 718

Tuesday, 29 October 2019 15:00 (30 minutes)

Selective Laser Melting (SLM) provides valuable prospects for nickel-based superalloys that are used in many applications in aerospace or automotive, chemical and nuclear industry. SLM involves numerous building parameters and subsequently, numerous post-building treatment options that affect the geometrical integrity, surface quality, microstructure and mechanical behavior. Coin-shaped samples of Alloy 718, were built with different SLM building strategies. Residual stresses in the bulk of the specimen were measured by neutron diffraction experiment at the POLDI instrument at the Paul Scherrer Institute. In addition, X-Ray diffraction was measured to study the precipitates and electron microscopy was used to investigate the effect of building conditions on the microstructure, crystallographic texture and chemical variations.

Position

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Session Classification: Poster session

Track Classification: Poster