

## **P5.3005 Surface plastic of micro-scale tungsten powder for additive manufacturing by thermal plasmas processing**

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See full abstract here <http://ocs.ciemat.es/EPS2019ABS/pdf/P5.3005.pdf>

The surface of tungsten powder with irregular shape was treated by thermal plasmas and the thermodynamics and dynamics behavior of powder particles in the plasma was monitored by the particle online monitor of DPV2000. The morphologies of the plasma plastic powders was observed by Scanning Electron Microscope (SEM). The results show that the temperature and velocity of tungsten particles decreased with the increasing of axial distance away out of the plasma generator. The morphology of that presented a regular spherical shape and its interior was densified after plasma plastic processing.

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### References

- [1] Kobayashi N, Kawakami Y, Kamada K, et al. Spherical submicron-size copper powders coagulated from a vapor phase in RF induction thermal plasma [J]. *Thin Solid Films*, 2008, 516(13): 4402-4406.
- [2] Liu X p, Wang K s, Hu P, et al. Spheroidization of molybdenum powder by radio frequency thermal plasma [J]. *Int. J. Miner. Metall. Mater.*, 2015, 22(11): 1212-1218.
- [3] Wang J J, Hao J J, Guo Z M, et al. Preparation of spherical tungsten and titanium powders by RF induction plasma processing [J]. *Rare Met.*, 2015, 34(6): 431-435.

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