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**Metallic powder treatment by the magnetron sputtering technique: application to additive manufacturing**axel hemberg<sup>1</sup>, Morgane Herbin<sup>1</sup>, Thomas Godfroid<sup>1</sup>, Damien Thiry<sup>2</sup>, Rony Snyders<sup>2</sup><sup>1</sup>Materia Nova, Mons, Belgium <sup>2</sup>Umons, Mons, Belgium

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Nowadays, the Laser Beam Melting (LBM) and binder-jetting 3D Printing (3DP) of metallic powders are promising for the fabrication of components used in several industrial sectors including the electronic, transport, aeronautics and aerospace areas. Nevertheless, the use of these techniques in additive manufacturing is hampered by the low laser absorption of the metallic powders and their proneness to oxidation, resulting in a poor sinterability.

In this context, in this work, the synthesis of a thin film (i.e. Ti, Cr, Ni-Cr) by the magnetron sputtering technique on Cu, Fe and Al powders is studied. The whole set of our data (i.e. XPS, SEM, XRF) indicate that the powder particles are homogeneously covered resulting in the increase (i) in their laser absorption, (ii) their resistance toward oxidation and their (iii) wettability paving the way for their processability by the LBM and 3DP techniques.

**Keywords**

Additive Manufacturing

Metallic Powders

Magnetron Sputtering

Thin Film

3D Printing