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## P3.214 Thermophysical and mechanical properties of W-Cu laminates produced by FAST joining

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W-laminates are multi layered composites realized from alternately stacked W and a second metal foils. Such materials are promising candidates for W-based structural materials for fusion reactors like DEMO or beyond concepts, due to the fact that cold-rolled ultrafine-grained thin W foils show exceptional properties in terms of ductility, toughness and ductile to brittle transition (DBT), in contrast to classic bulk W materials [1]. Therefore, different routes to transfer the W foils properties to bulk materials have been investigated [2,3]. In this work we present the results obtained for W-Cu laminates produced via a FAST (Field Assisted Sintering Technique) joining route. The main advantages of FAST resides in the short processing time, with subsequent lower recrystallization detrimental effects. Structural, thermophysical and mechanical properties of W-Cu laminate samples produced in this way are investigated and compared with those available for diffusion bonded similar samples.

[1] J. Reiser, L. Garrison, H. Greuner et al., Int. J. of Refractory Met. & Hard Materials 69 (2017) 66.

[2] J. Reiser, M. Rieth, B. Dafferner et al., J. Nucl. Mat. 423 (2012) 1.

[3] J. Reiser, M. Rieth, A. Moeslang et al., J. Nucl. Mat. 436 (2013) 47.

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