The role of the heterostructured interfaces in ARB processed laminated metallic composites (LMCs)

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Most of the time material properties were attributed to microstructural characteristics as grain size or precipitation volume fraction etc. For ultrafine-grained or heterostructured (UFGH) materials the importance of interfaces and their characteristics gained more and more attention [1]. Especially in the field of UFGH materials produces by severe plastic deformation processes, like accumulative roll bonding (ARB), interfaces can be tailored and systematically studied within different material systems [2]. Nevertheless, up to now it is still unclear which interface characteristics are important and how do they affect mechanical properties. Different laminated metallic composites (LMCs) were produced by combining copper sheets with other metal sheets by ARB processing. By systematic characterization of all LMCs it was possible to isolate different interface properties in order to shed light on the role of interfaces over different length scales. Therefore, mechanical testing like tensile, hardness and nanoindentation tests as well as microstructural analysis in SEM and TEM were conducted.

Keywords: heterostructured materials, accumulative roll bounding, interface, copper

References:

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