



Special Issue Reprint

Advances in Processing and Mechanical Behavior in Lightweight Metals and Alloys

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Lightweight metals and alloys have represented for many years the most suitable solution for many high-tech applications, including sport equipment and automotive components where alternate movements required low inertia. Aerospace has probably been the sector where most of the potential of aluminum and titanium resides. The term light alloy is focused on materials based on aluminum, titanium, and magnesium systems, including the intermetallic-reinforced matrices. Nevertheless, the processing of light alloys has always been faced with low-formability and narrow-thermal processing windows with respect to the steel family. Thanks to researchers' creativity, new processes have been invented based on complex forming steps, i.e., gas-superplastic diffusion bonding, or hot isostatic postprocessing to overcome this drawback and obtain net-shape or near-net shape components. What is the new frontier of processing? What are the innovative thermal treatments to improve the toughness and fatigue limits? Further, what about the properties that are possible to reach with innovative additive forming processes, based on powder metallurgy? These are only a few of the pending questions in the field. This Special Issue is intended to provide a wide set of articles on various aspects of light alloy processing innovation and characterization. The idea is to collect a wide range of articles focused on light alloy characterization, including innovative metallurgy solution correlated with mechanical property effects. Innovation on production methods, including those based on powder metallurgy and performance in final products, is desired.



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