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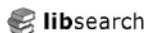
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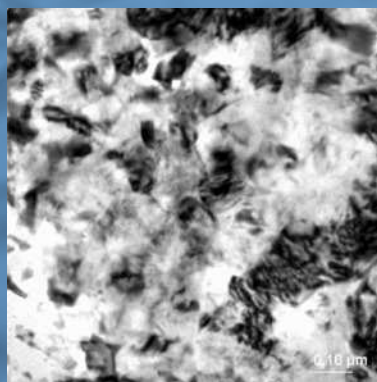
Professor

Leszek A. Dobrzański M Dr hc
Editor-in-Chief of the AMSE
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Dear Readers,

The next issue of Archives of Materials Science and Engineering is handed over to PT Readers. As usual, we have tried to collect engaging scientific papers. We hope that they will be interesting for you. I do recommend the paper from the area of laser alloying of heat treated light alloys, which is very intensively developed personally by me with a group of my closest staff at my mother Institute of Engineering Materials and Biomaterials of the Silesian University of Technology, in which there is a specialized complex of laboratories, well-equipped with research equipment in the framework of fully modernized Laboratory of Engineering Materials and Biomaterials Researches supported from the EU within the framework of Projects: MERMFLEG, BIO-FARM and LANAMATE. I wish a nice reading and as always encourage PT Authors to publish their papers in next issues of our journal.



The paper written by K. Labisz, T. Tański and L.A. Dobrzański on "HPDL laser alloying of heat treated Al-Si-Cu alloy" on a page 13 discusses the investigation results of microstructure of the cast aluminium alloys in the as cast state as well after laser treatment used for alloying with carbide and oxide ceramic powders like aluminium oxide and silicon carbide, titanium carbide, vanadium carbide and tungsten carbide. The purpose of this work was also to determine the laser treatment conditions for surface hardening of the investigation alloys, like laser power, as well as the laser scan rate. Concerning the laser treatment conditions for surface hardening the scan rate and the laser power influence was studied. Power in the range between 1.0 and 2.0 kW was used. The structure of the surface laser tray changes in a way that there are very high roughness of the surface zone and the flatness or geometry changes in an important manner, crucial for further investigation. The investigations were performed using light and electron microscopy for the microstructure determination. By mind of the transmission electron microscopy, especially selected area diffraction method appliance it was possible to determine the phases occurred in the alloy in the as cast state. The morphology and size of the Mg₂Si was also possible to determine the lattice parameters for this phase. The combination of metallographic investigation for cast aluminium alloys – including electron microscope investigation – and used, HPDL treatment parameters make the investigation results attractive for automobile, aviation industry and others, where aluminium alloys play an important role.