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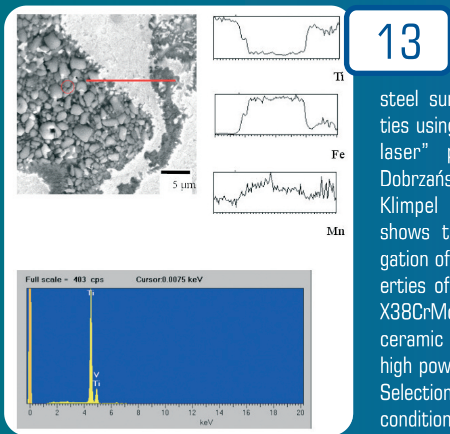
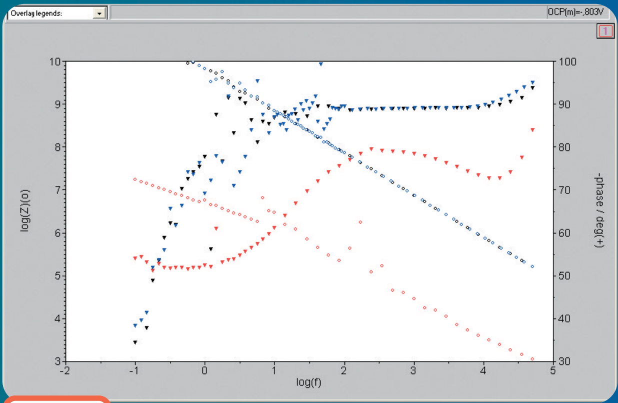
In the research paper entitled "TEM studies of tempered structural steels with Ni" by J. Krawczyk, P. Bała and J. Pacyna on a **page 59** the influence of Ni addition on the microstructure of structural steels after tempering is presented. In this investigation, four model alloys of the variable concentration of Ni and constant concentration of carbon and other elements were used. The increase of Ni content in investigated structural steels causes a decrease of ϵ carbide concentration in their microstructure after tempering at 200oC for 2 hours. Cementite precipitates in these steels independently on the boundaries of martensite needles boundaries and on the twin boundaries in the areas in which the precipitates of ϵ carbide dissolved. Presented results may be used to design new technologies of tempering of structural steels with nickel addition.



The paper entitled "Improvement of the hot work tool steel surface layers properties using a high power diode laser" presented by L.A. Dobrzański, M. Piec and A. Klimpel on a **page 13** shows technologies, investigation of structure and properties of hot work tool steel X38CrMoV5-3 alloying with ceramic particles by using high power diode laser HPDL. Selection of laser operating conditions is discussed, as well as beam face quality after remelting, hardness, microhardness test, wear resistant, EDX, TEM and X-ray microanalysis results. The structure of the solidified material after the laser remelting is characterised by the diversified morphology connected with the multiple change of the crystal growth direction from little dendrites to tiny equiaxed grains in the near-surface zone. The main axes of the dendrites are directed according to the heat abstraction directions on the border of the solid and liquid phases with the carbides' clusters arranged according to the whirls caused by a convectional movement in the pool of the metallic liquid as well as partly unremelted conglomerates NbC, TaC, VC, WC and TiC as a melting material in the middle area of the remelted zone. Laser technique features the especially promising tool for solving the contemporary surface engineering problems thanks to the physical properties of the laser beam, making it possible to focus precisely the delivered energy in the form of heat in the surface layer.



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The paper from Materials area made by A. Baron, W. Simka and W. Chrzanowski on "EIS tests of electrochemical behaviour of Ti6Al4V and Ti6Al7Nb alloys" on a **page 23** shows the influence of parameters of the electrochemical treatment of Ti –alloys on their electrochemical behavior in Tyrod solution. It has been found that good resistance to corrosion and homogenous oxide layer on the Ti6Al4V and Ti6Al7Nb alloys surface can be achieved due to the application of electrolytic polishing of these alloys in a special bath and anodic passivation in sulphuric acid(VI), phosphoric acid(V) and inorganic salts. Results of the experiments presents the influence of various conditions of anodic passivation of the surface of the Ti6Al4V and Ti6Al7Nb alloy. In those cases, when the surface roughness plays important role, this method can be applied in treatment of the material intended for medical applications especially.

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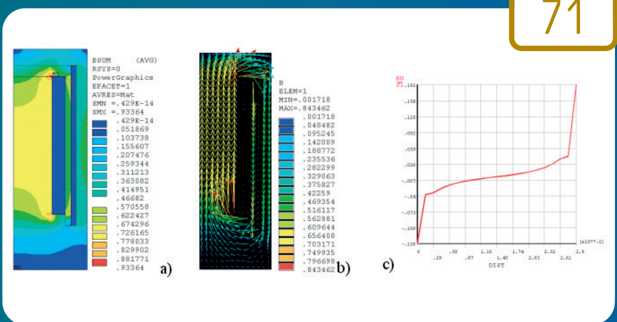

In the research paper entitled "Prototype magnetorheological fluid damper for active vibration control system" by E. Świtoński, A. Mężyk, S. Duda and S. Kciuk on a **page 71** a concept of a system for isolation from external vibration sources with use of a magnetorheological (MR) dampers is presented. The elaborated damper and applied control algorithms substantially influences the values for velocities and accelerations. Incorporation of a controllable damper into the stabilisation system significantly decreases displacements of the mass to be stabilised being the results of shocks and bumps caused by excitations w(t) as compared to similar displacement of the same mass when only a passive damper was used. Many mechanical systems should be separated from sources of vibrations. The active or semiactive vibration control systems offer a number of advantages as compared with passive systems so that better efficiency of vibration damping is assured.

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