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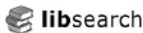
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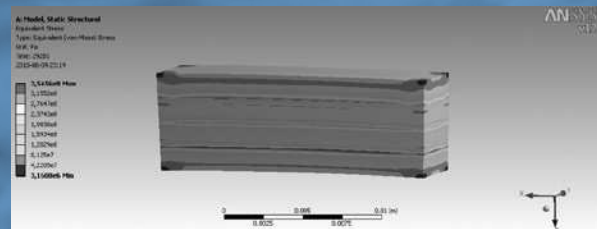
## Professor

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

Today we hand to you a special issue. It is just 20 years ago when the initiative of the organisation of the International Scientific Conferences on Achievements in Materials and Manufacturing Engineering, commonly known as AMME began. We started the organization of, as it turned out, a very successful series of conferences AMME to make mechanical engineers aware to what extent a market success of machines and devices designed by them and their reliability and durability depends on the proper selection of material for each component of a machine or a device. On the other hand, a material engineer cannot produce materials, not taking into consideration who and what for will use them. It is therefore necessary to familiarize mutually in details with needs and conditions. The past 20 years showed that the assumptions were correct and the goal was achieved. This is confirmed by five thousand delegates of these conferences altogether. Delegates have arrived to the subsequent AMME conferences from 55 countries of the world and hundreds of universities and other research institutions. Nearly two thousand papers and communications, usually published in an extended form in scientific journals have been presented. The next two thousand works have been presented at poster sessions. This is a huge content-related output of those conferences. On 9<sup>th</sup> to 12<sup>th</sup> September 2012 in Kolobrzeg, Poland the 20<sup>th</sup> Jubilee International Scientific Conference on Achievements in Mechanical and Materials Engineering "AMME'2012" will take place. As usual, we expect about 200 delegates from dozens of countries from all continents. I am convinced that it will be as usual an important and valuable content-related meeting of scientists. I wish you all fruitful debates and a pleasant stay in Poland.



The paper entitled "The computer simulation of internal stresses of tool gradient materials reinforced with the WC-Co" by L.A. Dobrzański, W. Kwaśny, B. Dołżańska, A. Śliwa, K. Golombek and G. Nowak on a page 38 presents the computer simulation with the use of finite element method for determining the internal stresses in tool gradient materials WC-Co obtained in the powder metallurgy process in different temperatures of 1400°C + HIP and 1460°C + HIP. The developed model of the tool consists of four layers with different contents of tungsten carbide and the concentration of cobalt by using the finite element method allows to simulate the impact of sintering temperature on the stress occurring in material. On the basis of the model, it was found out that by properly controlled treatment technology, able to induce compressive stresses in the surface layer of material, thus increasing the resistance of material on the formation and propagation of cracks. It was confirmed that the use of finite element method can be a way for computer simulation of stresses, strains and displacements of the fabricated gradient material depending on the sintering temperature. Results reached in this way are satisfying and in slight degree differ from results reached by experimental method. However, for achieving better calculation accuracy in further researches a given model which was presented in this paper should be developed. The obtained results show the possibility to manufacture TGMs on the basis of different portions of cobalt reinforced with hard ceramics particles in order. The computer simulation is based on the finite element method, which allows to better understand the interdependence between parameters of process and choosing optimal solution.