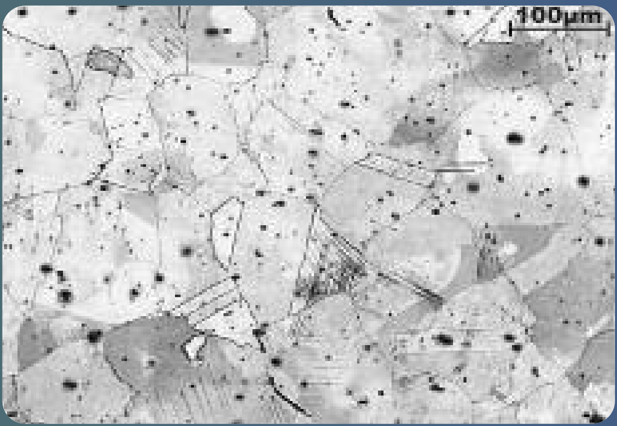
Cover story – continued

In the early 1400s, the third Ming Emperor, Yong Le, moved the capital of China to Beijing. In 1406, he began construction of a new 'Forbidden City' that would include the imperial palace complex. The Forbidden City (can be seen in the first small photo on the cover) was the home and centre of power for 24 emperors during the mid to latter Ming and Qing dynasties. The Forbidden City is located directly to the north of Tian' An Men Square (Heaven Piece Square) and is accessible from the square via Tian' An Men Gate. Today, the Forbidden City, located at the exact centre of the ancient city of Beijing, is a public museum and is listed by UNESCO as the largest collection of preserved ancient wooden structures in the World, and was declared a World Heritage Site in 1987. The Forbidden City is the world's largest palace complex. The extensive grounds of the Forbidden City cover 74 hectares. There are 800 buildings that have in total about 9,000 rooms. Ambition of each of the visitors of Beijing is to spend at least one afternoon in that historic museum complex. Surely those who come to Beijing, to participate in the Olympic Games will do the same.
The dream of each person visiting China, and especially Beijing is also to visit the Great Wall of China ('Chang Cheng' in Chinese) (can be seen in the second small photo on the cover), which is an immensely long man-made wall that was built to keep out invaders and probably the only building on the Earth which can be seen from the Cosmos. That dream surely will not be absolved of by most of participants and supporters of the Olympic Games 2008. The Great Wall is a true marvel and a testament to the long history of the Chinese Civilisation and was listed as a World Heritage Site by UNESCO in 1987. The sections of the Great Wall closest to Beijing are Ju Yong Guan and Ba Da Ling. Mu Tian Yu Great Wall is another restored section to the east of Ba Da Ling, and is also much longer (22 kilometres). The Great Wall of China winds its way across grasslands, deserts and mountains like a giant dragon. It extends from Shan Hai Guan (the 'Old Dragon Head'), a seaport along the coast of Bo Hai, in the east (near Bei Dai He resort) to Jia Yu Guan Pass in Gan Su Province in the west. The Great Wall spans nine provinces and its total length is 6,700 kilometres.
In the last small photo on the cover there is the large, modern style dragon, which has 56 fins, representing the 56 nationalities of China. Further, these fins are designed to resemble China's Great Wall. Two large dragons are outside the China Central Television CCTV Broadcasting Tower (ZhongYang Dian Shi Ta), which was opened in 1992 and was built on the foundations of the ancient Altar of the Moon, which was a Ming dynasty sacrificial temple. The CCTV Tower is located on the west side of the western third ring road. The tip of the antenna of the CCTV Tower is 405 metres high. There are three levels for viewing: one in open air, one inside a high viewing platform, which is 250 metres high and another that is a slowly revolving restaurant. Of course it is unusually important place in Beijing, China, because it is just from that place countless number of information about sport success of the Olympic Games'2008 will go.
Among P.T. Authors and P.T. Readers of the Journal of Achievements of Materials and Manufacturing Engineering there are lot of the ones who live and work in China and many who have visited that great country and many who are interested in sports and many, who make scientific and research works concerning technical aspects of sports. We invite you for further cooperation and reading of the next issues of our Journal.

Selected materialographical photo

123

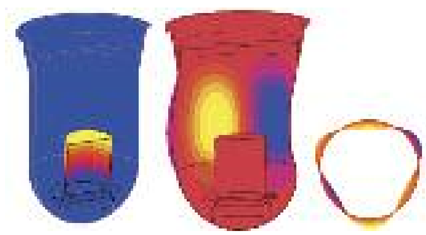
The materials area is shown in the paper on "The Influence of Thermomechanical Treatment on Structure of FeAl Intermetallic Phase-Based Alloys" by D. Kuc, G. Niewielski and I. Bednarczyk on a **page 123**. The major problem restricting universal employment of intermetallic phase base alloy is their low plasticity which leads to hamper their development as construction materials. The following work concentrates on the analysis of microstructure and plasticity of ordered FeAl (B2) alloy during cold and hot deformation and rolling process. The research carried out enabled the understanding of the phenomena taking place during deformation and annealing of the investigated alloy. The obtained sheets can be used as constructional elements working in complex stress fields, at a high temperature and corrosive environments. The results will constitute the basis for modelling the structural changes. The obtained results are vital for designing an effective thermo-mechanical processing technology for the investigated FeAl alloy.



139

Authors: L.A. Dobrzański, A. Grajcar and W. Borek in the paper entitled "Influence of hot-working conditions on a structure of high-manganese austenitic steels" on a **page 139** determine the influence of hot deformation conditions on σ-ϵ curves and structure changes of new-developed high-manganese austenitic steels. At the initial state the steel containing 3% of Si and Al possesses homogeneous austenite structure with many annealing twins. Si concentration increased up to 4% and Al concentration decreased to 2% result in a presence of some fraction of ϵ martensite plates. For applied deformation conditions, the values of flow stress vary from 250 to 450MPa – increasing with decreasing deformation temperature. A relatively small values of ϵ_{max} deformation at temperatures of 1050 and 950°C allow to suppose that in this range of temperature, to form a fine-grained microstructure of steels, dynamic recrystallisation can be used. At a temperature of 850°C, the dynamic recrystallisation leads to structure refinement after true strain of about 0.51. The obtained stress-strain curves can be useful in determination of power-force parametres of hot-rolling of high-manganese austenitic steels.

163



The analysis and modelling represented by R. Lo Frano and G. Forasassi on "Dynamic buckling in a next generation metal coolant nuclear reactor" on a **page 163** presents the investigation of the buckling effects due to the seismic sloshing phenomena interesting for a next generation heavy liquid metal cooled reactor as for example the eXperimental Accelerator Driven System (XADS). The numerical results are presented and discussed, highlighting the importance of the fluid-structure interaction effects in terms of stress intensity and impulsive pressure on the structural dynamic capability. These results allowed to determine the components mostly affected by the loading condition, in order to upgrade the geometrical design, if any, for the considered nuclear power plant (NPP). From the point of view of the practical implication, it is worth stressing that the safety of liquid retaining nuclear structures subjected to a seismic loading is of great importance in regard to the hydrodynamic forces caused by sloshing and impulsive liquid motion determined by the liquid filling levels oscillatory phenomenon.

Manufacturing and processing

Industrial management and organisation

Technical paper

Indexes