

PREFACE

The volume contains the contributions presented at the 4-th International Workshop on Diffusion and Diffusional Phase Transformations in Alloys that was held on the base of National dendrological park “Sofiyivka” in Uman’ (Cherkasy region, Ukraine), 16-21 July, 2007. DIFTRANS-2007 was jointly organized by Cherkasy National University, Institute of Metal Physics of the National Academy of Sciences of Ukraine, Uman’ State Pedagogical University and National dendrological park “Sofiyivka”.

Diffusion controlled processes still remain the most important and interesting question of materials science. Among the problems, which now are on the foreground, a synergy of diffusion and morphology evolution, the initial stages of solid state reactions, analysis of nano- materials and phenomena, thermo- and electromigration, reliability of solder joints and interconnects in microelectronic devices stand out. Number of challenging problems still exist in “classical” areas of nucleation, reactive and interdiffusion, phase growth in multicomponent and binary systems, decomposition and ripening.

The history of “Cherkasy-driven” conferences on phase transformation and diffusion started in 1989 and initially was limited to Ukrainian and Russian diffusion community. In 1998 DIFTRANS became multinational and assembled 70 participants from 13 countries. The following events were also organized in Cherkasy in 2001 and 2004. The main aim of DIFTRANS organizers always was to create a suitable atmosphere for informal discussions of the fundamental problems. We tried to continue this tradition in the poetic 200-years old park of Sofiyivka.

The DIFTRANS-2007 assembled 83 participants from 12 countries: Australia, Belarus, Estonia, Israel, France, Germany, Hungary, Poland, Russia, The Netherlands, Ukraine, and USA. During the DIFTRANS-2007 the 20 invited lectures, 40 oral presentations and 47 poster presentations were presented. The problems on diffusion and reactions, structural and phase transformations, surface and grain boundary diffusion, driven systems, fundamental problems of diffusion, special

diffusion problems were considered. This volume contains 32 contributed articles. All contributed papers were carefully reviewed by at least two referees. 13 more papers – contributions from participants of DIFTRANS, are being published (some of them – in Russian) in the Bulletin of Cherkasy University (series of Physics and Mathematics), #117, which is also available free in electronic form (<http://bulletin.cdu.edu.ua>)

DIFTRANS-2007 was successful thanks to the efforts and help of many people: participants and the members of International Advisory Board who provided us with a lot of important suggestions. We thank warmly all those who helped us in chairing the sessions and reviewing the contributions. The event would not have taken place without significant activity of all the members of Organizing Committee.

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