



Eleventh International Conference on Electron-Beam Technologies

EBT'2014

8 – 12 June 2014, Varna, Bulgaria

The conference was dedicated to the 145th Anniversary of the Bulgarian Academy of Sciences

The Eleventh International Conference on Electron-Beam Technologies EBT 2014 was held in Varna from 8 to 12 June, 2014. This conference edition was dedicated to the 145th anniversary of the Bulgarian Academy of Sciences. The organizers of this series of conferences are the Institute of Electronics, BAS, the Union of Electronics, Electrical Engineering and Telecommunications and the Technology Center on Electron-Beam and Plasma Technologies and Techniques (TC EPTT) Ltd. Traditionally – since 1985 – these conferences have been held in Bulgaria in the beginning of June in resorts located to the north of the Black Sea port city of Varna – this year the venue of the conference was Grand Hotel Varna, Sts. Konstantin and Elena resort. The event was attended by 65 participants from 15 countries: USA, Japan, Germany, The Czech Republic, The United Kingdom, France, Algeria, Slovakia, China, South Korea, Hungary, Belarus, Ukraine, Russia, Bulgaria. The Conference Proceedings containing 61 reviewed reports authored by 191 scientists from 55 academic research centers, universities and industrial organizations were published by the Electronics and Electrical Engineering (Nos. 5-6, 2014) Bulgarian scientific and technical journal.



Most of the participants in the conference were young researchers actively working in the fields developed by previous generations of scientists that had participated in previous EBT conferences. This year the key areas of the reports were physical research and development of

new technologies in the field of electron-beam welding; implementation of electron-beam accelerators in view of increasing the quality of the insulation of electrical wires and cables thus allowing their operation at high temperatures and mechanical loads; electron-beam applications in ecology, such as disinfection of wastewater and soils; applications of pulsed electron- or ion-beams to thermal and non-thermal modification of coatings and metal surface structures, or decontamination, etc.; problems in simulating thermal processes in electron-beam melting and refining of metals and alloys and technological issues in refining phosphorus in silicon during the production of solar batteries. A group of reports was devoted to the problems of electronic optics – namely, high-frequency beam deviation at large angles, physical processes and beam quality during operation of electron guns with a plasma emitter. Several specific examples of complementary and competing technologies involving lasers, ion or plasma flows were also discussed.

The conference is a platform for sharing the latest results, new ideas, problems and trends in the field of generation of intense electron beams and their application for technological purposes. The discussions were tolerant and supporting the performance of young scientists reporting their results, thorough and effective at the same time, thanks to the presence of representatives of different scientific schools and experts with many years of practical experience. The results reported were indicative of the increasing use of electron-beam technologies in the industry of developed industrial countries and in new areas of research – development and optimization of applications of electron beams in the fields of nanotechnology and biotechnology and solving efficiency problems of the expensive electron-beam equipment.

Besides representatives of numerous scientific organizations from different countries, a number of companies also took part in the conference and presented their latest developments, namely, VON ARDENNE GmbH, Germany; Vistec Electron Beam GmbH, Germany; TWI Ltd., England; ÚJV Řež, a.s., Czech Republic; Podolskkabel, Russia; EB TECH Co. Ltd., Korea; Motor Sich JSC, Ukraine; Elion Ltd, Russia; Kurt J Lesker Co. Ltd, Hungary; Technetics Group Enpro Industries Companies, USA; Evobeam, Germany; TC EPTT LTD., Bulgaria. They had the opportunity to present the work of their companies and to show their newest developments in the area of electron-beam technologies. The meeting of science and business was undoubtedly very useful and raised numerous discussions and great interest.

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