

Topical Issue: Modelling In Accelerator Physics And Nuclear Medicine

PREFACE

The present issue contains a collection of extended versions of papers presented at the 20th International Workshop on Beam Dynamics and Optimization, BDO-2014.

The series of workshops on Beam Dynamics and Optimization started in 1994. The workshop took place mostly at Saint-Petersburg (Russia), but also in Saratov, Dubna (Russia) and in St. Petersburg (Florida, USA). By now the workshop has already developed into a full scale conference with more than 100 participants every time. Nevertheless, we are keeping the traditional and well-recognized name “BDO Workshop”.

This year BDO Workshop was held jointly with 10th International Vacuum Electron Sources Conference, 2nd International Conference on Emission Electronics, International Conference on Computer Technologies in Physical and Engineering Applications and took place in St. Petersburg, Russia from June 30 to July 4, 2014.

The main organizer of the event was Saint-Petersburg State University. Sponsors and co-organizers were also Efremov Scientific Research Institute of Electrophysical Apparatus (NIEFA), Joint Institute for Nuclear Research (JINR), Russian National Committee on Automatic Control, International Physics and Control Society (PHYSCON), Institute of Electrical and Electronics Engineers (IEEE), Russian Foundation for Basic Research and other organizations.

Traditionally the objective of the Workshop is to bring together mathematicians, physicists and engineers to present and discuss recent developments in the area of mathematical control methods, modeling and optimization, theory and design of charged particle accelerators, beams and plasma physics, nuclear medicine, parallel and distributed computing in accelerator physics.

In this issue of *Cybernetics and Physics (CAP)* journal the papers which focus on both theoretical and practical aspects of computational physics, beam physics and nuclear medicine are presented.

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