

Topical Issue: Modelling and Optimization in Accelerator Physics

PREFACE

The previous thematic issue of *Cybernetics and Physics* journal (CAP) was dedicated to different problems of modelling in accelerator physics and nuclear medicine. The present issue also contains a collection of extended versions of papers presented at the 20th International Workshop on Beam Dynamics and Optimization, BDO-2014.

More than 100 reports were submitted to BDO-2014 Workshop by representatives of the leading world research centers and universities. The short versions of these papers can be found on the IEEE web site:

<http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=6881320>.

In the present issue more attention is given to certain optimization problems and also to the analysis and modelling of accelerating and focusing structures. Moreover, the current status of very interesting and ambitious NICA project (Nuclotron-based Ion Collider fAcility) by Joint Institute for Nuclear Research, Dubna is also considered.

I hope this special issue will be useful for many researchers in beam physics and related fields. Moreover those who are interested in the problem of modelling and optimization of the charged particle beams and plasma dynamics I can recommend to see a special issue of *International Journal of Modern Physics A*, 2009 — vol. 24, no. 5, where proceedings of the 15th Workshop on Beam Dynamics and Optimization (BDO 2008), St. Petersburg, Florida, USA, 10-12 July 2008 were published. Editors: Dmitri Ovsyannikov, Martin Berz and Pavel Snopok.

In conclusion, I want to express my great appreciation to Anna Golovkina for the assistance in organizing two special issues of *Cybernetics and Physics* journal.

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