

Preface

The present volume contains selected papers from the International Conference “Phase transitions, critical and nonlinear phenomena in condensed matter” (PTCNPCM 2015). The conference is organized by the Chelyabinsk State University (Chelyabinsk, Russia), Institute of Physics of Dagestan Scientific Centre of RAS (Makhachkala, Russia) and Institute of Radio-Engineering and Electronics of RAS (Moscow, Russia). The conference was sponsored by The Russian Foundation for Basic Research.

International Conference “Phase transitions, critical and nonlinear phenomena in condensed matter” is an extension of traditional international conference which was previously held in Makhachkala at the premises of Institute of Physics of Dagestan Scientific Centre AS USSR. This conference was firstly held in 1984 as All-Union (USSR) conference, the next took place in 1989. Conferences recommenced in 1998, and since then has been held every two years. Also, satellite seminars “Magnetic phase transitions” accompanied such conferences. The aim of this conference is to learn about the latest developments, current state and new ideas in the field of study of phase transitions, critical and nonlinear phenomena in condensed matter.

This volume presents a selection from papers submitted to the conference. All of the papers were subjected to peer reviewing by at least two expert referees. The papers selected for this volume depended on their quality and their relevancy to the conference. The volume tends to present to a reader recent advances in the fields of phase transitions and critical phenomena in condensed matter; mathematical modeling and computer simulation of phase transitions and critical phenomena; nonlinear phenomena and chaos in condensed matter; structural transformations in carbon materials. The volume also includes the special chapter devoted to the recent results in the field of investigation of the meteorite “Chelyabinsk”, which has been fallen in the Chelyabinsk region on February, 15, 2013.

The Organizing Committee is grateful to all of the contributors who made this volume possible. As the guest editor of the volume, I wish to acknowledge all of those who have updated and reviewed the papers submitted to the conference.

Vasiliy D. Buchelnikov D.Sc., Professor
Co-Chairman of PTCNPCM 2015
Chelyabinsk State University, E-mail: buche@csu.ru

Conference organizers

Chelyabinsk State University (Chelyabinsk)
Institute of Physics of Dagestan Scientific Centre of RAS (Makhachkala)
Institute of Radio-Engineering and Electronics of RAS (Moscow)

Conference Chairs

I.K. Kamilov (Makhachkala)
A.K. Murtazayev (Makhachkala)
V.D. Buchelnikov (Chelyabinsk)

International Advisory Committee

V.G. Shavrov, Moscow, Russia
I.V. Bychkov, Chelyabinsk, Russia
S.V. Taskaev, Chelyabinsk, Russia
A.S. Bugaev, Moscow, Russia
Yu. V. Gulyaev, Moscow, Russia
V.V. Ustinov, Yekaterinburg, Russia
A.M. Ashabov, Syktyvkar, Russia
V.G. Baryahtar, Kiev, Ukraine
S.V. Matveev, Chelyabinsk, Russia
H. Szymczak, Warsaw, Poland
B. Hernando, Oviedo, Spain
F. Albertini, Parma, Italy
M.H. Rabadanov, Makhachkala, Russia
A.K. Zvezdin, Moscow, Russia
V.V. Koledov, Moscow, Russia
K.I. Kugel, Moscow, Russia
B.A. Strukov, Moscow, Russia
V.V. Khovaylo, Moscow, Russia
P.N. Vorontsov-Velyaminov, Saint-Petersburg, Russia
S.V. Maleev, Saint-Petersburg, Russia
A.I. Sokolov, Saint-Petersburg, Russia
E.A. Belenkov, Chelyabinsk, Russia
V.A. Burmistrov, Chelyabinsk, Russia
V.A. Tumentsev, Chelyabinsk, Russia
V.E. Fedorov, Chelyabinsk, Russia
R.M. Vakhitov, Ufa, Russia
E.G. Ekomasov, Ufa, Russia
A.N. Lachiniov, Ufa, Russia

Conference sponsors

The Russian Foundation for Basic Research

Leninsky prospect, 32A, 119991, B-334, GSP-1, Moscow, Russia

Tel: +7495-952-58-47, Fax: +7495-938-19-31

www.rfbr.ru

(Grant # 15-02-20617 G)

Chelyabinsk State University

Bratiev Kashirinykh St., 129, 454001 Chelyabinsk, Russia

Tel: +7351-799-72-16, Fax: +7351-799-71-25

www.csu.ru