

PREFACE

The papers reported in these two special issues are a selection of communications and posters presented in the frame of the PAMIR 2014 Conference organized on June 16 to 20 in Riga, Latvia.



THERMO ACOUSTIC AND SPACE TECHNOLOGIES

Riga, Latvia, June 16–20, 2014



Theme 9: SPACE

PAMIR is a conference on magnetohydrodynamics (MHD) and more generally on magneto sciences. It is focused on basic MHD problems but considers also energetic, electro-processing of materials as well as the technology of liquid metals which is of a first importance in the concept of large nuclear systems, such as the thermonuclear facility I.T.E.R or fast neutron reactors, such as ASTRID cooled by sodium, within the frame of Generation 4.

The main relevant fluids considered by the topics of the conference are liquid metals, which have high electrical conductivity, and poorly conducting fluids as electrolytes. In particular, the influence of magnetic fields in electrochemistry and applications, regrouped under the name of Magneto electro chemistry, is a part of magneto sciences.

Thus the conferences were essentially focused on fundamental and applied researches, combining several disciplines as hydrodynamics, heat and mass transfers, electromagnetism both of theoretical and experimental aspects.

Moreover, the conference was supported by the EU FP7 program in the frame of the project SpaceTRIPS (Space Thermo acoustic Radio-Isotopic Power System).

Thus the 2014 edition included also new topics focused on thermo acoustic and space technologies. Some papers presented in these frames have been selected to be published in spite of the fact that they are not connected with MHD or magneto sciences. These papers are regrouped in volume 2 of the two special issues resulting from PAMIR 2014.

SpaceTRIPS aims to demonstrate the feasibility of a highly efficient and reliable electrical generator for space, using radio isotopic heat source. The project is based on the modelling, design, construction and experimentation of a prototype of the MHD electrical generator driven by thermo acoustic. Any information about this project can be found on the SpaceTRIPS web site

<http://space-trips.eu.seventhframework.sal.lv/>

Preface

As PAMIR 2011, PAMIR 2014 was coupled with a Summer School which was focused on the activity of “SpaceTRIPS”. This school has mainly taken advantages of the competences of the six partners that compose SpaceTRIPS:

- HEKYOM start up company, France, develops thermo acoustics applications
- CNRS (Centre National de la Recherche Scientifique) – French research organization
- IPUL - Institute of Physics, University of Latvia
- AREVA TA - French company about nuclear activity
- Thales Alenia Space Italy specialized in Space Technology
- HZDR Germany, research specialized in MHD activities.

These partners were largely represented in the board of the two events, as chairmen

A. Alemany (France), J. Freibergs (Latvia)

and co chairmen:

**J.P. Chopart (France), C. Latge (France),
M. François (France), E. Gaia (Italy)**

who would like to thank the secretaries of the Conference and the Summer School:

**Beatrice Collovati (France), Maja Broka (Latvia)
and Svetlana Shchancina (Latvia),**

without whom these events would not have been organized.