Special Issue on Selected Papers of the 16th Latin American Workshop on Plasma Physics (LAWPP 2017)

The 16th version of the Latin American Workshop on Plasma Physics (LAWPP 2017) took place at the main campus of the Universidad Nacional Autónoma de México, Mexico City, Mexico, on September 4, 2017—September 8, 2017, organized by the Sociedad Mexicana de Física Division of Plasma Physics. This was the third time LAWPP was held in Mexico, following those in 1992 and 2005. The main mission of this series of meetings is to promote plasma physics in the region, providing a proper forum, as well as collaborations between scientists within Latin America, and broadly across the world. However, while it is a regional event in nature, it fulfilled its objective of bringing in an important international undertone. Furthermore, a wide range of topics were covered, in the fields of space and astrophysical plasmas, controlled nuclear fusion, laser-produced plasmas, dense magnetized plasmas, and industrial and environmental applications of plasmas.

There were 13 60-min plenary and tutorial talks, 15 40-min invited talks, and 31 contributions were selected for 20-min talks. The rest of the contributions were presented in 54 posters. The full information on the meeting, including the Book of Abstracts can be downloaded from [1]. A few selected papers are published in this Special Issue.

The opening talk was given by Yasuhiko Takeiri, on the recent deuterium experiments in the large helical device, which is represented in these selected papers’ issue. Concerning controlled fusion, there were also invited talks on the Wendelstein 7-X stellerator, and the Reversed Field Pinch International Fusion Program. Smaller devices were represented by the ISTTOK stellerator, from Portugal and, the TCABR tokamak from Brazil, and some recent advancements on the commissioning of the SCR-1 stellerator from Costa Rica were also presented. Other fusion papers dealt with equilibrium, stability, and transport, as well as runaway electrons in confined plasmas.

Special emphasis was given in this version to space and astrophysical plasmas, with talks on the Solar environment, including magnetic reconnection at the earth’s magnetosphere, as well as in astrophysical sources, the dynamics of coronal mass ejections, and other large-scale structures in the interplanetary medium. The talk by Teresa Nieves-Chinchilla on the theoretical analytical flux-rope model is particularly relevant in that, just as the problems on magnetic reconnection, they are of interest both in magnetic confinement as well as in space plasmas.

Basic plasma physics studies, such as those at the LARe Plasma Device (LAPD) from the University of California at Los Angeles, Los Angeles, CA, USA, and plasma simulations, which are of interest to both communities, were allocated special tutorials, with a more general target audience.

Plasma applications in environmental sciences and industry were well represented by the Latin American Community from all latitudes, and they were given a special space, mostly in simultaneous sessions. It is worth noting that this is the predominant direction in which plasma science in the region has evolved in the past couple of decades, even by groups which formerly showed interest in fusion experiments. Therefore, a series of papers on nanotechnology and graphene played a predominant role, some of which are part of this issue. Attempts to use plasmas for agriculture purposes and municipal waste disposal are also included in this Special Issue. Devices which can be used as radiation sources, such as exploding wires, laser-induced plasmas, and plasma foci, were widely represented, as they are cost effective ways of doing experimental plasma research.

J. Julio E. Herrera-Velázquez
Instituto de Ciencias Nucleares
Universidad Nacional Autónoma de México
Mexico City 06000, Mexico

APPENDIX
RELATED WORK