Fifth Symposium on Prospects in the Physics of Discrete Symmetries (DISCRETE2017)

Preface

The DISCRETE 2014: Fifth Symposium on Prospects in the Physics of Discrete Symmetries took place at the Faculty of Physics, University of Warsaw, Pasteura 5, 02-093 Warsaw, Poland, from Tuesday, November 28 2016 to Saturday, December 3 2016. It has been organised by the Faculty of Physics of the University of Warsaw and the Division for Fundamental Interactions of the Polish Physical Society. This is the fifth Edition of the DISCRETE conference series, which is a biannual event, having been held previously in Valencia (Discrete2008), Rome (Discrete2010), Lisbon (Discrete2012) and London (Discrete2014).

The topics covered at the DISCRETE series of conferences are: T, C, P, CP symmetries; accidental symmetries (B, L conservation); CPT symmetry, decoherence and entangled states, Lorentz symmetry breaking (phenomenology and current bounds); neutrino mass and mixing; implications for cosmology and astroparticle physics, dark matter searches; experimental prospects at LHC, new facilities.

The Symposium was opened by the Vice-Dean of the Faculty of Physics Professor Zygmunt Lalak. Following the tradition of DISCRETE series of conferences, the talks were organised in plenary sessions with a total of 24 invited talks, and parallel sessions with a total of 61 talks, including both invited and selected contributions from the submitted abstracts. On Thursday, December 1 2016, a special session as a part of the DISCRETE 2016 Symposium and the Leopold Infeld Colloquium took place during which Andrzej Trautman from University of Warsaw gave a personal account on Gravitational waves: early theoretical work, Michal Bejger from Nicolaus Copernicus Astronomical Centre presented The first detections of gravitational waves from binary black holes and Sergio Ferrara from CERN gave a talk Supergravity and its Legacy: Personal Prelude and the Play.

The speakers of the plenary sessions were: José Bernabéu, Tatsuya Nakada, José Ignatio Lattore, Beatrix Hiesmayr, Francesco Gonnella, Carl Bender, Sarben Sarkar, Alessandro Calandri, Silvio Donato, Antonio Di Domenico, Nikolaos Movromatos, Nazilla mahmoudi, Margarida (Gui) Rebelo, Apostolos Pilaftsis, Jacob Noordmans, Anna Soter, Carlos Munoz, Graham Ross, Vasiliki Mitsou-Ewa Rondio, Serguey Petcov, Eberhard Widmann, Gerald Gabrielse, Vincenzo Branchina and Gustavo Branco. Talks in parallel sessions have been grouped in 7 thematic streams: T, C, P, CP and CPT symmetries (conveners: Antonio Di Domenico and Andrzej Kupsc), Emergence of symmetries from entanglement (conveners: Antonio Di Domenico and Andrzej Kupsc), Discrete symmetries in cosmology (convenor: Roberto Ruiz de Austri), Neutrino masses, mixing and discrete symmetries (convenor: Magdalena Posiadala-Zezula) Discrete symmetries and models of flavour mixing (convenor: Margarida (Gui) Rebelo) Role of symmetries beyond the Standard Model (convenor: Zygmunt Lalak) Strings, branes, extra dimensions and discrete symmetries (Tomasz Taylor and Apostolos Pilaftsis).

The Symposium was attended by about 120 participants. Among the social events, there was
a welcome reception on November 28, a social dinner in the Old Town of Warsaw on December 1 and a Chopin Concert in the Staszic Palace on December 2. The next symposium of the series will be organised by Stefan Meyer Institute of the Austrian Academy of Science in Vienna (November 2018)

The organisers wish to thank the conveners, speakers and participants of DISCRETE 2016 for providing an intellectually challenging and stimulating atmosphere through presentations and discussions during this meeting. As editors, we are indebted to all the contributors of this volume for their prompt and diligent submission of very high quality papers, covering the state of the art of the respective fields.

Warsaw, June 2017
The Editors
Bohdan Grzadkowski, Jan Kalinowski and Maria Krawczyk (Faculty of Physics, University of Warsaw)

It is with our great sadness to inform that our best friend and colleague Maria Krawczyk passed away on May 24th, 2017.