

## Preface

This volume contains the written proceedings of PPNS-2018, the international workshop on “Particle Physics at Neutron Sources” hosted by the LPSC in Grenoble, France from May 24<sup>th</sup>–26<sup>th</sup>, 2018.

This workshop continues the tradition of a decennial series of workshops on particle physics at neutron sources, held in Grenoble. As one of the largest conferences in this field, it attracted 135 participants from all over the world. Their academic contributions covered both experimental and theoretical results and developments from the last ten years, on the following topics: *Properties of the Neutron, Fundamental Symmetries and Interactions, Hadronic Parity Violation, Search for eV-Neutrinos, Gravity tests in the quantum regime*, and *New Techniques and Ideas*. Thirty-six contributed talks were presented in plenary sessions, and sixty-three posters were presented in dedicated poster sessions.

Each topic was introduced by an invited review talk. Martin GONZALES-ALONSO (CERN, Switzerland) reviewed searches for Beyond Standard Model physics in systems with light and heavy quarks. Clare BURRAGE (University of Nottingham, UK) presented a perspective on the “Dark Side of the Universe”, covering aspects of Dark Matter and Dark Energy for non-cosmologists. Vincenzo CIRIGLIANO (Los Alamos National Laboratory, USA) discussed the theoretical motivations to search for neutron-antineutron oscillations, in the context of other searches for physics beyond the Standard Model. Although prevented from travelling at the last moment, Vincenzo accepted the challenge of recording his presentation for us, and answered questions from the audience via video conference. Carlo GIUNTI (INFN Torino, Italy) introduced the session on Searches for eV sterile neutrinos, and Ernst RASEL (Universität Hannover, Germany) reviewed gravity tests in the quantum regime.

The year 2018 also marked the 50<sup>th</sup> anniversary of the discovery of ultracold neutrons (UCN). To commemorate this occasion, Hartmut Abele (TU Wien, Austria) gave a speech. The discoverers of UCN Albert STEYERL, Yuri POKOTILOVSKI and Alexander STRELKOV were invited as distinguished guests.

The organizers would like to particularly thank Laurence TELLIER and Serge CLAISSE for their dedicated support, which contributed enormously to the success of this workshop. We also gratefully acknowledge support from the ILL, the LPSC, the ENIGMASS project, the Université Grenoble-Alpes and Grenoble INP, the Grenoble-Alpes-Métropole, and the companies Movatec GmbH, S-DH GmbH, and Swiss Neutronics.

The proceedings contributions in this volume were peer-reviewed by at least two referees per article. We would like to thank all referees for their support.

S. Degenkolb, P. Geltenbort, T. Jenke (Workshop Chair), M. Jentschel, V.V. Nesvizhevsky,  
S. Roccia, T. Soldner, O. Zimmer  
ILL, Grenoble, France

D. Rebreyend, A. Stutz  
LPSC, Grenoble, France