

PREFACE

The present volume of *Acta Physica Polonica B Proceedings Supplement* contains the proceedings of the **Excited QCD 2026 Workshop**, held at the Carmen de la Victoria, University of Granada, Granada, Spain, from January 8 to 13, 2026.

This workshop is the 15th edition of a series that has previously been organized in Poland (2009 and 2020), Slovakia (2010 and 2015), France (2011), Portugal (2012, 2016, and 2017), Bosnia and Herzegovina (2013 and 2014), Serbia (2018), Austria (2019), Italy (2022), and Spain (2024).

The workshop covered diverse aspects of Quantum Chromodynamics (QCD):

- (i) QCD at low energies: excited hadrons, new resonances, glueballs, multi-quarks, hadron spectroscopy, femtoscopy, hadron–hadron interactions, hadronic form factors, decay mechanisms, and heavy-flavour physics. Particular attention was devoted to the study of exotic states, including tetraquarks, pentaquarks, and hadronic molecules, their production and decays at modern experimental facilities such as LHCb, BESIII, and Belle II, as well as to the use of femtosopic techniques to probe hadronic interactions and constrain the nature of exotic states. The programme also featured developments based on effective field theories, lattice QCD, Dyson–Schwinger equations, and modern data-analysis methods.
- (ii) QCD at high temperatures and large densities: heavy-ion collisions, jet quenching and parton energy loss, hadronisation, quarkonium evolution in hot media, Color Glass Condensate (CGC) and Glasma physics, quark–gluon plasma, chiral symmetry restoration, and effective descriptions of strongly interacting matter under extreme conditions. The programme also included dense nuclear and quark matter, equations of state, compact stars and neutron stars, together with applications connecting QCD to nuclear physics and astrophysics.
- (iii) QCD phase diagram from the lattice, and other theoretical advancements: lattice QCD studies of the phase structure and thermodynamics of strongly interacting matter, heavy-quark observables and precision calculations, as well as complementary continuum and effective approaches. Contributions further addressed modern theoretical tools including functional methods, chiral perturbation theory, effective field theories, Bayesian inference, uncertainty quantification, and machine learning techniques for extracting QCD information from experimental and numerical data.

Emphasis was placed on new theoretical developments as well as on the latest experimental results. The workshop also highlighted emerging approaches and methodologies, including applications of machine learning and quantum computing to QCD and hadron physics.

The workshop provided a stimulating scientific atmosphere, lively discussions on a wide range of QCD-related topics, and active participation by young researchers. It aimed to foster the friendly, collaborative, and inclusive environment that has characterized previous editions and remains one of its defining features.

All talks were plenary and scheduled in 30-minute slots, including time for discussion. Coffee breaks of approximately 30 minutes were held after every three or four talks, and two free afternoons provided additional opportunities for scientific discussions as well as cultural and outdoor activities.

It was an eventful and rewarding week. We would like to thank all the participants for their interesting contributions, the lively and fruitful discussions, and the friendly atmosphere that made the workshop such an enjoyable event.

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