

HK 56: Plenarvorträge

Zeit: Freitag 9:00–10:30

Raum: A

Plenarvortrag

HK 56.1 Fr 9:00 A

Rare Isotope Spectroscopic INvestigation at GSI - RISING — ●M. GÓRSKA¹, L. CÁCERES^{1,2}, A. GARNSWORTHY³, J. GERL¹, A. JUNGCLAUS², M. PFÜTZNER⁴, ZS. PODOLYÁK³, P. REGAN³, P. REITER⁵, D. RUDOLPH⁶, S. STEER³, and H.-J. WOLLERSHEIM¹ for the RISING-Collaboration — ¹GSI Darmstadt, Plackstr 1, D-64291 Darmstadt, Germany — ²Universidad Autonoma de Madrid, Madrid, Spain — ³University of Surrey, Guildford, UK — ⁴Warsaw University, Warsaw, Poland — ⁵IKP, Universität zu Köln, Köln, Germany — ⁶Lund University, Lund, Sweden

A broad range of physics phenomena can be addressed by high-resolution in-beam γ -ray spectroscopy experiments with radioactive beams offered within the RISING project. In the "Fast Beam Campaign" secondary beams selected at relativistic energies by the FRS were used for Coulomb excitation or secondary fragmentation experiments to study projectile like nuclei by measuring de-excitation photons. Alternatively, the relativistic radioactive beams, both in their ground and isomeric states, were implanted and their decay could be investigated. Highlights of the on-going "Stopped Beam Campaign" include a study of mirror symmetry based on the ^{54}Ni – ^{54}Fe

pair with isomeric proton radioactivity, $T = 0$ and $T = 1$ isospin competing states studied in heavy $N = Z$ nuclei ^{82}Nb and ^{86}Tc , ^{132}Sn region with isomers discovered in the neutron rich r-process waiting point nucleus ^{130}Cd and ^{131}In , and structure of ^{204}Pt , 4 protons below ^{208}Pb . The experience gained in the RISING project will flow into the HISPEC/DESPEC projects for the future FAIR facility.

Plenarvortrag

HK 56.2 Fr 9:45 A

Aspects of confinement and dynamical quark mass generation in Landau gauge QCD — ●CHRISTIAN FISCHER — Institut für Kernphysik, TU Darmstadt, Schlossgartenstraße 9, 64289 Darmstadt

We review recent results on the infrared properties of Landau gauge QCD from a nonperturbative functional integral approach. We discuss a unique analytic solution for the low momentum behaviour of dressed propagators and vertices. The resulting running coupling has a universal infrared fixed point. Gluon confinement is realised via positivity violations. In the quark sector we find a realisation of quark confinement due to infrared singularities in the quark-gluon vertex. We discuss numerical solutions for the quark propagator and resulting properties of light mesons.