MP 9: Hauptvorträge Donnerstagvormittag

Zeit: Donnerstag 9:00–10:30 Raum: KIP Gr. HS

Hauptvortrag MP 9.1 Do 9:00 KIP Gr. HS

Infraparticle scattering and renormalization in non-relativistic QED — •Thomas Chen — Department of Mathematics, Princeton University, Fine Hall, Washington Road, Princeton, NJ 08544, USA

We discuss some recent work related to the infrared problem in non-relativistic Quantum Electrodynamics (QED). In particular, we explain the link between rigorous infrared mass renormalization, the identification of coherent infrared representations, and the construction of infraparticle scattering states without infrared cutoffs. This is in part based on joint works with V. Bach, J. Fröhlich, A. Pizzo, and I.M. Sigal.

Hauptvortrag MP 9.2 Do 9:45 KIP Gr. HS

On the effective dynamics of the pseudo-relativistic Hartree equation — •Lars Jonsson — School of Electrical Engineering, Electromagnetic Engineering, Royal Institute of Technology (KTH), Teknikringen 33, SE-100 44 Stockholm, Sweden

We study solutions close to solitary waves of the pseudo-relativistic Hartree equation describing boson stars under the influence of an external gravitational field. In particular, we analyze the long-time effective dynamics of such solutions. In essence, we establish a (long-time) stability result for solutions describing boson stars that move under the influence of an external gravitational field. The proof of our main result tackles difficulties that are absent when deriving similar results on effective solitary wave motions for NLS or NLW. This is due to the fact that the pseudorelativisitic Hartree equation does not exhibit Galilean or Lorentz covariance.

This is a joint work with J. Fröhlich, Theoretical Physics, ETH Zürich, and E. Lenzmann, Department of Mathematics, MIT.