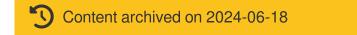
Home > ... > FP7 >

Beyond local quantum fields: non-commutative field theory and deformed symmetries





Beyond local quantum fields: noncommutative field theory and deformed symmetries

Fact Sheet

Project Information		
BEYOND LOCAL QFT		Funded under Specific programme "People" implementing the
Grant agreement ID: 236658		Seventh Framework Programme of the European
		Community for research, technological
		development and demonstration activities (2007 to
Project closed		2013)
Start date 15 September 2009	End date 14 September 2011	Total cost No data EU contribution € 155 832,58
		Coordinated by UNIVERSITEIT UTRECHT Netherlands

Objective

"Non-commutative quantum field theories and their associated deformed symmetries provide intriguing examples of models beyond the realm of standard local quantum field theory which attempt to introduce basic quantum features of the underlying space-time. The project will focus on a particular model of deformed space-time symmetries, the kappa-Poincare algebra, which provides the prototypical example of non-commutative field theory exhibiting a ""built-in"" cut-off (Planckian) energy scale and modified energy-momentum dispersion relation. These features make the model particularly appealing from the perspective of extracting potential phenomenological predictions from it. The planned research will focus on developing consistent guantum field theoretic models based on kappa-deformed symmetries and exploring various contexts in which the new structures introduced lead to observable effects. This will be achieved through the study of of particle scattering in general interacting theories and how particle creation phenomena in non-trivial backgrounds are affected by the deformations. To obtain further insights on the general aspects of this and other similar models the researcher will address the issue of providing a rigorous definition of symmetry deformation within the abstract formulation of quantum field theory and will investigate the properties of 'analogue' statistical mechanics models which exhibit similar deformed symmetries. The fellowship will give the applicant the opportunity to return to Europe and to work at the ITP in Utrecht, an internationally renowned center for theoretical and high energy physics to carry out cutting-edge research at the interface of quantum gravity, high energy physics phenomenology, foundational aspects of quantum field theory and mathematical physics."

Fields of science (EuroSciVoc) ()

natural sciences > physical sciences > quantum physics > quantum field theory

Keywords



<u>Gravitation</u>

Mathematical physics

Quantum field theory

<u>Relativity</u>

Statistical physics

Programme(s)

<u>FP7-PEOPLE - Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)</u>

Topic(s)

Call for proposal

FP7-PEOPLE-IEF-2008 See other projects for this call

Funding Scheme

MC-IEF - Intra-European Fellowships (IEF)

Coordinator

UNIVERSITEIT UTRECHT

EU contribution

€ 155 832,58

Total cost

No data

Address

HEIDELBERGLAAN 8 3584 CS Utrecht

Activity type Higher or Secondary Education Establishments

Links

Contact the organisation C Website C Participation in EU R&I programmes C HORIZON collaboration network

Last update: 1 August 2019

Permalink: https://cordis.europa.eu/project/id/236658

European Union, 2025

4 of 4