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ZAVOD ZA TEORIJSKU FIZIKU
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SEMINAR ZAVODA ZA TEORIJSKU FIZIKU
(Zajednički seminari Zavoda za teorijsku fiziku,
Zavoda za eksperimentalnu fiziku i Zavoda za teorijsku fiziku PMF-a)

On models of quantum spacetime

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Sažetak:

Quantum spacetime is a particular class of noncommutative models, where commutation relations among the coordinates are assumed. The DFR model of 1995 is based on physical motivations, which will be shortly recalled. It describes a flat spacetime, suitable for describing isolated highly energetic processes (no global curvature), as a very preliminar, intermediate step towards quantum gravity. Here the coordinates are not interpreted as observables, but as generators of the localisation algebra. They play the same role of the x dependence of an ordinary quantum field $A(x)$; evaluation of localisation states on the coordinates play the same role as smearing with test functions. The relation between Weyl quantisation and other approaches based on $*$ -products will be shortly analysed. We will finally discuss some aspects of the effective nonlocal theories describing scattering processes on quantum spacetime. This material is covered by the review: [arXiv:1004.5261] and refereces therein.

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