

Poincaré invariance and Brillouin fields on a lattice

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Abstract:

Various theories of quantum gravity predict the existence of a minimal length, which is generally expected to result in Lorentz-violating dispersion relations. In this talk, I demonstrate how a representation of the Poincaré group can arise on a lattice theory in its Brillouin zone without taking the lattice spacing to zero. Moreover, I also summarize my other research activities and prospects.

Short bio:

Bekir Baytaş is a visiting scholar in the Physics Department at the University of Missouri. He obtained his Ph.D. degree in Physics from the Pennsylvania State University. He studied quantum and classical correlations in quantum gravity and cosmology during his doctoral research. He visited Perimeter Institute for Theoretical Physics as a graduate fellow. He has a 2-year postdoctoral experience at the Center for Relativity and Gravitation, Beijing Normal University, where he investigated various applications of canonical effective methods in quantum gravitational theories. His current research interests lie in the field of loop quantum gravity and quantum gravity phenomenology.