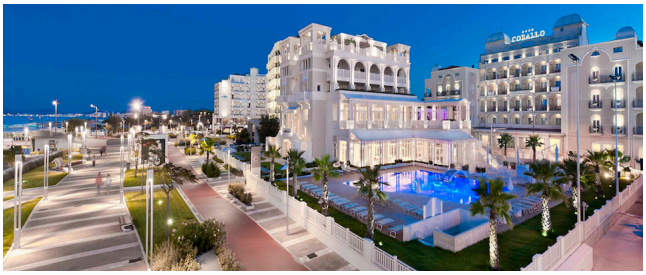

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The structure of quantum carpets in a carbon nanotube

Thursday, 8 June 2023 12:00 (20 minutes)

We have investigated long-time dynamics of the quantum carpets occurring in positron transmission through a chiral single-wall carbon nanotube in the channeling mode. We found that the carpet structure depends strongly on the width of the initial wave packet. In the case of the narrow wave packet obtained carpet is periodic and very regular, woven by full and fractional wave packet revivals. Additional inverted revived patterns were observed close to fractional revival, which does not exist in carpets for a particle in a sealed box. In the case of the wide wave packet, we were able to recognize motifs that repeat approximately and conclude that dynamics, in this case, is quasi-periodic.

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