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A perspective on additional structure in local formulations for position measurements in noncommutative quantum mechanics (NCQM)

We contrast two equivalent formulations for NCQM position measurement: a constrained local description in position containing additional degrees of freedom, and an unconstrained nonlocal description without nonpositional degrees of freedom. After analysing corresponding classical theories, we demonstrate that the local formulations allow for natural interpretations of NCQM involving additional structure/extent.

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