

One-dimensional universe of free particles: classical and quantum correspondence

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(Submitted on 2 Jan 2010)

We obtain multi-free particle parametric systems with complete classical-quantum correspondence. First, we quantize the classical parametric model which results in a hyperbolic partial differential equation and gives us freedom for choosing the initial wave function and its initial slope. After choosing appropriate initial conditions, we construct wave packets which follow classical trajectories and strongly peak on them in whole configuration space. These wave packets never disperse and their behavior are in complete agreement with the constancy of momentum for free particles in the classical domain.

Comments: 7 pages, 2 figures

Subjects: **Quantum Physics (quant-ph)**

Cite as: **[arXiv:1001.0308v1](#) [quant-ph]**

Submission history

From: Pouria Pedram [[view email](#)]

[v1] Sat, 2 Jan 2010 15:26:20 GMT (880kb)

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