This is a review text file submitted electronically to MR.

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Review text:

In their older work the authors proposed that a recurrence of the initial profile of the probability distributions (detected, for harmonic oscillator in one dimension, via its path-integral analysis) may be interpreted as a quantum analogue of the well known repeated return (or focusing) of the classical caustics to a single point. In the present new development they add a centrifugal-like core and perform the similar calculation. In detail, using the abstract von Neumann's extension theory, they must first pick up their Hamiltonian H among the infinitely many available essentially self-adjoint extensions (this step being all formulated, for pedestrians, in the language of boundary conditions in the origin but, unfortunately, without any indication of its possible physical foundation). Then they offer the explicit closed formulae (their main result which implies an unexplained "anomaly" in the Feynman kernel) plus a picture showing a hypothetical "copying of a profile" phenomenon caused by the specific "tunneling" (introduced by their particular ad hoc removal of the ambiguity of the operator H).

In the conclusion the authors mention that their model is in fact a certain single-particle predecessor of a generalized N-particle Calogero model with tunneling. This I believe is very important. One of the extremely appealing next steps in similar calculations will be a study of tunneling through TWO inverse-square barriers in the single-particle Calogero-Sutherland systems (cf. M. Znojil, Poeschl-Teller paradoxes (math-ph/0102034), J. Phys. A: Math. Gen. 34 (2001) 9585 - 9592 for more details). Moreover, an extension of these calogerian models beyond the essentially self-adjoint domain, to the so called PT symmetric systems is already under current research as well (cf. M. Znojil and M. Tater, Exactly solvable three-body Calogero-type model with translucent two-body

barriers (nucl-th/0103015), Phys. Lett. A 284 (2001) 225 - 230, and M. Znojil and M. Tater, Complex Calogero model with real energies (quant-ph/0010087), J. Phys. A: Math. Gen. 34 (2001) 1793-1803 for further references).