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# Tunneling from Oscillating Barriers in Nuclei

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## Abstract

In this work we study some aspects of the classical and quantum dynamics of tunneling through oscillating barriers [1]. The time-dependence of the potential is explicitly taken into account. Interesting conclusions are drawn for the energy dependence of the transmission coefficient comparing the classical and quantum mechanical results. We also study the time dependent transmission and we find a characteristic behaviour which admits a classical interpretation. The possibility to apply these ideas to the treatment of alpha and proton decay of isoscalar giant monopole resonances [2] and other vibrating states is discussed.

## References

P. K. Papachristou, E. Katifori, V. Constantoudis, F. K. Diakonos, E. Mavrommatis, P. Schmelcher, to be submitted for publication and references therein.

See for ex. K. T. Knoefle and G. J. Wagner, in *Electric and Magnetic Giant Resonances in Nuclei*, ed. J. S. Speth (World Scientific, 1991) p. 234; M. Kohl et al, Phys. Rev. C **57** (1998) 3167.