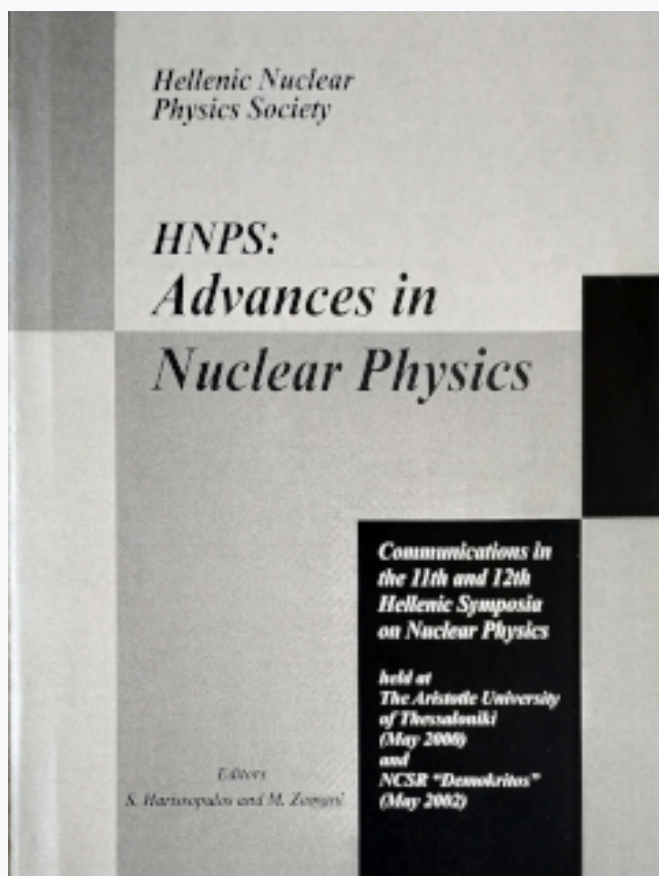


## HNPS Advances in Nuclear Physics

Vol 11 (2002)

HNPS2000 and HNPS2002



### Tunneling from Oscillating Barriers in Nuclei

*P. K. Papachristou, E. Katifori, V. Constantoudis, F. K. Diakonos, E. Mavrommatis*

#### To cite this article:

Papachristou, P. K., Katifori, E., Constantoudis, V., Diakonos, F. K., & Mavrommatis, E. (2019). Tunneling from Oscillating Barriers in Nuclei. *HNPS Advances in Nuclear Physics*, 11. Retrieved from <https://eproceedings.epublishing.ekt.gr/index.php/hnps/article/view/2218>

# Tunneling from Oscillating Barriers in Nuclei

P. K. PAPACHRISTOU<sup>1</sup>, E. KATIFORI<sup>1</sup>, V. CONSTANTOUDIS<sup>2</sup>  
F. K. DIAKONOS<sup>1</sup>, E. MAVROMMATIS<sup>1</sup>

<sup>1</sup>*Department of Physics, University of Athens  
Panepistimiopolis, Athens, GR 157 71*

<sup>2</sup>*Department of Physics, National Technical University of Athens  
Zografou Campus, Athens, GR 157 80*

## 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.