

Lifetime measurements of nuclei in the vicinity of the double-magic nucleus ^{208}Pb using Fast-timing technique”

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Abstract:

Our study is focused on Po isotopes, which are in the vicinity of ^{208}Pb . For those nuclei is already known that the valence protons occupy the $h_{9/2}$ orbital and thus determines a typical seniority-like energy pattern for the yrast states. But adding also valence neutrons, we can expect that collective behavior will appear. It is still no clear when and how this will happen. We had started our investigation from ^{212}Po , where we had observed an extremely low collectivity. It was shown that the latter originated from the low $B(E2)$ value of the 2_1^+ state in ^{210}Po . To show the transition between single-particle and collective excitations, we have measured the lifetimes in three nuclei : ^{208}Po , ^{206}Po , ^{204}Po .

[1] T. Grahn *et al.*, Eur. Phys. J. A **52**, 340 (2016)

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[3] J.-M. Régis, Phys. Rev. C **95**,054319 (2017)