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New evidence for alpha clustering structure in the ground state band of ^{212}Po

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^{212}Po has two-protons and neutrons outside the doubly-magic nucleus ^{208}Pb and it may be assumed that the nuclear structure can be well described within the shell-model. But various experimental properties, such as the short-lived ground state, are better described by an α-clustering model. The B(E2) values of the decays of the low-lying yrast states are an important finger print to describe the structure of ^{212}Po. Especially the missing B(E2; $4_1^+ \rightarrow 2_1^+$) value is important in this discussion. We have performed an α-transfer experiment to investigate excited states of ^{212}Po and determine the lifetimes using the ROSPHERE γ-ray detector array at IFIN-HH in Magurele, Romania. This array consisted of 15 HPGe detectors and 10 $LaBr_3$(Ce) scintillator detectors and was supplemented with the SORCERER particle-detector array. The combination of γ-ray and the particle detectors was an important tool to determine the mean lifetimes of all ground-state band levels up to the 8^+ state applying the fast-timing method [Ma. von Tresckow et al., PLB 821, 136624 (2021)]. I will present our lifetime analysis and discuss the results within the shell-model and α-clustering model. This work is financially supported by EURONS2, IFA via grant 04FAIR/2020, MCDI via grant PN19060102, UK-STFC via grant ST/P005101/1, Ministry of Science and Higher Education of the Russian Federation under contract No. 075-10-2020-117.

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