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AGATA@GANIL(E693) (ONLINE): Exploration of alpha-cluster structures in heavy nuclei: The unique case of ^{212}Po ($^{208}\text{Pb} + \alpha$)

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Some years ago, unnatural-parity doublet states in ^{212}Po with spins of 4-, 6-, and 8-, which were observed to decay via strong E1 transitions to the yrast band in an experiment performed with the EUROBALL spectrometer, were interpreted as being of alpha-cluster structure. Subsequent theoretical work seemed to support this interpretation. The aim of experiment E693 was to study the alpha-cluster properties of the nucleus ^{212}Po in more detail. Although the experiment was seriously hampered by target problems, its analysis still led to very important conclusions. The new experimental information, together with a detailed comparison with shell-model calculations, suggests that the states of interest have positive rather than negative parity and decay via strong M1 transitions.

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