

Lifetime Measurements in ^{75}Br

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The experimental systematics of the relationship between side-feeding time τ_{SF} , and state lifetime τ , in highly excited states of deformed $A \approx 80$ nuclei shows that in general $\tau \approx \tau_{SF}$ [1,2]. Values of side-feeding times obtained from a Monte Carlo simulation agree with this experimental rule. ^{75}Br , however, does not seem to follow this relationship [2], since the experimental values follow $\tau_{SF} \approx 0.1\tau$ instead. On the other side, recent measurements have proven that side-feeding times can be much larger than state lifetimes [4]. There is then the natural question whether the observation of very short side-feeding times in ^{75}Br corresponds to contrasting structural effects in the continuum or, as shown in Ref. [4] for other cases, they might be an effect of a type of analysis in which the side-feeding effects are not properly taken into account.

An array of eight HPGe and two clover gamma-ray detectors was used to analyze the gamma-decay of ^{75}Br after the heavy-ion fusion-evaporation reaction $^{48}\text{Ti}(^{30}\text{Si},p2n)$ at 85 MeV beam energy with projectiles provided by the LINAC of the Nuclear Structure Laboratory of the Florida State University in Tallahassee. After production in a 1 mg/cm² ^{48}Ti foil, the recoil nuclei slowed down in a thick Ta backing (Doppler shift attenuation method). We report on the lifetimes measured in the ground state between $I^\pi = 13/2^+$ and $37/2^+$, two states above the previous measurement by Lühmann et al. [2].

[1] E. Galindo and F. Cristancho, Rev. Col. Fisica **29** (1997) 359.

[2] E. Galindo, Thesis. Universidad Nacional de Colombia (1997), unpublished.

[3] L. Lühmann et al., Phys. Rev. C **31** (1985) 828.

[4] C. Cardona et al., Phys. Rev. C (2003). In press.