

# FIRST DETECTION OF THE RADIOACTIVE MOLECULE $^{26}\text{AlF}$ AND ITS SPECTROSCOPIC ASPECTS

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The observation of radioactive isotopes, like  $^{26}\text{Al}$ , gives insights in the earlier nucleosynthesis processes of stellar cores. Until now, the characteristic  $\gamma$ -photons released during radioactive decay have been used to record their spatial distribution on a large scale, but this method generally fails to identify individual stellar objects due to the limited detection sensitivity.

An alternative approach is the observation of molecules containing radioactive isotopes, like  $^{26}\text{AlF}$ . The stable  $^{27}\text{Al}$ -bearing molecule is known to condensate in the outer atmosphere of late-type stars. Radio-telescope facilities, like *ALMA*, can identify these species via their rotational fingerprint. To enable an unambiguous identification the rotational transition frequencies of  $^{26}\text{AlF}$  need to be known with high accuracy.

In this work, the first detection of  $^{26}\text{AlF}$  in the merger object *CK Vulpeculae* is reported. The mass-independent molecular parameterization of  $\text{AlF}$  using a Dunham approach is shown in detail. Further candidate stellar sources of  $^{26}\text{Al}$  will be discussed.