FIRST DETECTION OF THE RADIOACTIVE MOLECULE ^{26}AlF AND ITS SPECTROSCOPIC ASPECTS

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The observation of radioactive isotopes, like ^{26}Al, gives insights in the earlier nucleosynthesis processes of stellar cores. Until now, the characteristic γ-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}AlF. The stable ^{27}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}AlF need to be known with high accuracy.

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