

# The 13th Torino Workshop on AGB stars & the 3rd Perugia Workshop on Nuclear Astrophysics



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## Technetium in and Mass-Loss from Miras

*Thursday, 23 June 2022 17:05 (25 minutes)*

Not predicted by stellar evolution theory, observations find that Miras without the 3DUP indicator technetium (Tc) in their atmospheres have a *higher* near-to-mid IR colours than their Tc-rich siblings (Uttenthaler 2013, A&A 556, A38). Since a near-to-mid IR colour such as K-WISE4 is an indicator of the mass-loss rate of AGB stars, this suggests that the mass-loss rate from post-3DUP Miras is lower than from pre-3DUP Miras. This is unexpected also because stars with 3DUP activity are thought to be more evolved than Tc-poor Miras, and mass loss is thought to increase along the evolution on the AGB. Different explanations for this result are discussed. One of them is that the radioactive decay of unstable isotopes, foremost  $^{26}\text{Al}$ , could impact the formation of dust in the stellar atmosphere and thereby the acceleration of the stellar wind (Uttenthaler et al. 2019, A&A 622, A120). We present new observational results in support of this hypothesis. In particular, we show new results involving measurements of the gas mass-loss rate (Uttenthaler et al., in preparation). More work, in particular on the role of radioactive isotopes in stellar atmospheres, is required to better understand this intriguing phenomenon.

### Session

Stellar observations (photometry and spectrometry)

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