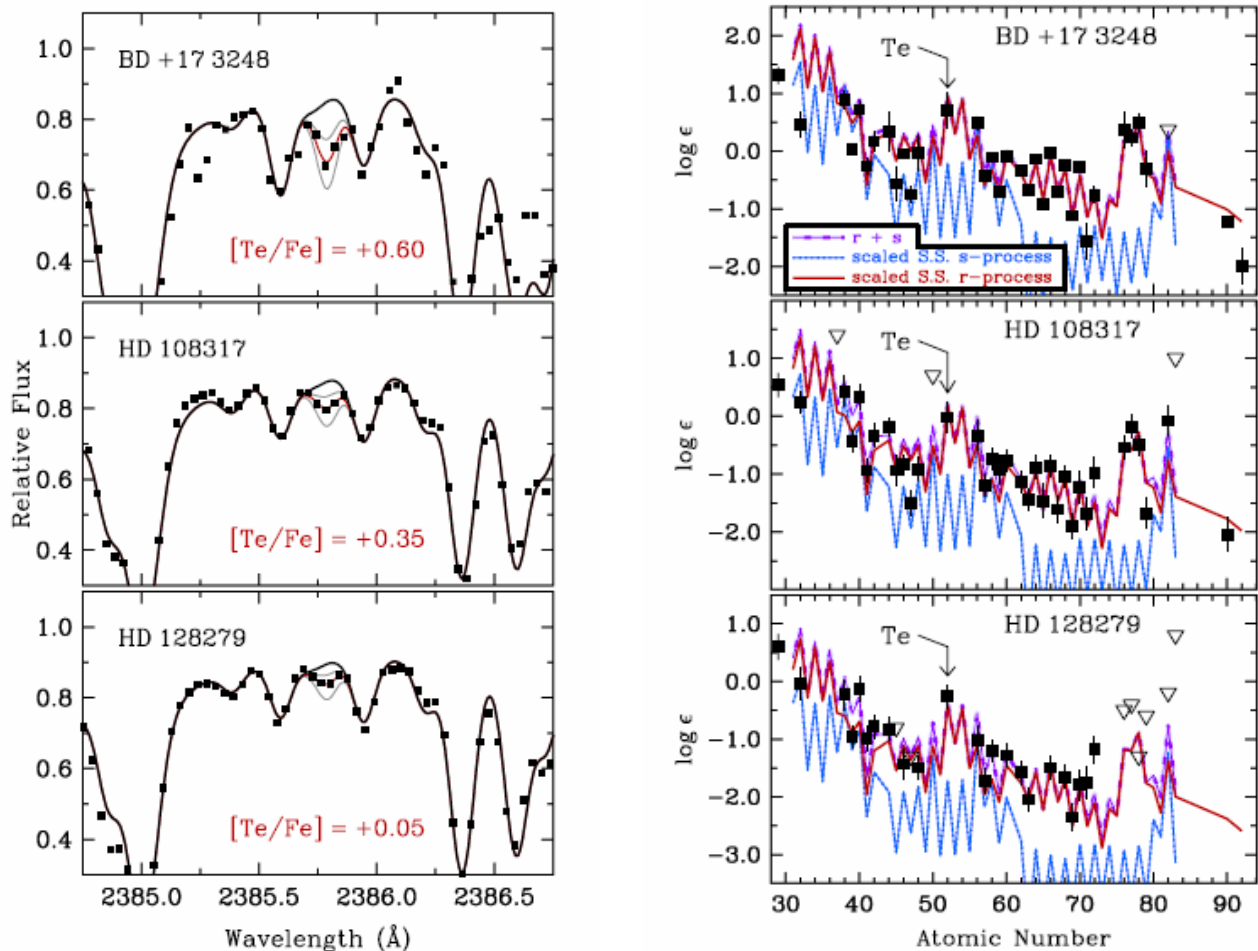


## Detection of the Second $r$ -Process Peak Element Tellurium in Metal-Poor Stars



Using near-ultraviolet spectra obtained with the Space Telescope Imaging Spectrograph on board the *Hubble Space Telescope*, Roederer et al. (2012) have detected neutral tellurium in three metal-poor stars enriched by products of  $r$ -process nucleosynthesis, BD+17 3248, HD 108317, and HD 128279. Tellurium (Te,  $Z = 52$ ) is found at the second  $r$ -process peak ( $A \approx 130$ ) associated with the  $N = 82$  neutron shell closure, and it has **not been detected previously in Galactic halo stars**. The derived tellurium abundances match the scaled solar system  $r$ -process distribution within the uncertainties, confirming the predicted second peak  $r$ -process residuals. **These results suggest that tellurium was predominantly produced in the main component of the  $r$ -process, along with the rare earth elements.**

**Contact Information:** Timothy Beers (NOAO and Michigan State University): beers@pa.msu.edu  
**Researchers:** Ian Roederer (Carnegie Observatories), Lames Lawler (Univ. of Wisconsin), John Cowan (Univ. of Oklahoma), Timothy Beers (NOAO/MSU), Anna Frebel (MIT), Inese Ivans (Univ. of Utah), Hendrik Schatz (NSCL, MSU), Jennifer Sobeck (Univ. of Chicago), Christopher Sneden (Univ. of Texas) **Publication:** Roederer, I.U., et al. (2012), ApJ, 747, L8 arXiv:1202.2378