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Lithium and proton-capture elements in Globular Cluster dwarfs: the case of 47 Tuc

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Previous surveys in a few metal-poor Globular Clusters (GCs) showed that the determination of abundances for Li and proton-capture elements offers a key tool to address the intra-cluster pollution scenario. In this Letter, we present Na, O and Li abundances in a large sample of dwarf stars in the metal-rich GC 47 Tucanae. We found a clear Na-O anticorrelation, in good agreement with what obtained for giant members by Carretta et al. (2009a). While lithium and oxygen abundances appear to be positively correlated with each other, there is a large scatter, well exceeding observational errors, and no anticorrelation with sodium. These findings suggest that Li depletion, due to mechanisms internal to the stars (which are cooler and more metal-rich than those on the Spite plateau) combines with the usual pollution scenario, responsible for the Na-O anticorrelation.

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