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Chemical characterisation of the X-shooter Spectral Library (XSL): [Mg/Fe] and [Ca/Fe] abundances

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Abstract

Context. The X-shooter Spectral Library (XSL) is a large empirical stellar library used as a benchmark for the development of stellar population models. The inclusion of α-elements abundances is crucial to disentangling the chemical evolution of any stellar system.
Aims. The aim of this paper is to provide a catalogue of high-precision and accurate magnesium and calcium abundances from a wide variety of stars well distributed in the Hertzsprung-Russell (HR) diagram.
Methods. We originally performed an analysis of the derived Mg and Ca abundances for medium-resolution spectra of 611 stars from the XSL Data Release 2. For this purpose, we used the GAUGUIN automated abundance
Results. We have finally obtained precise [Mg/Fe] and [Ca/Fe] abundances for 192 and 217 stars respectively, from which 174 stars have measurements in both elements. The stars cover a broad range of effective temperature.
Conclusions. This catalogue is suitable for improving the modelling of evolutionary stellar population models with empirical α-enhancements, which could significantly contribute to the analysis of external galaxies
Key words. stars:abundances – methods: data analysis – techniques: spectroscopic.

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