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The lithium isotopic ratio of the metal-poor spectroscopic binary CS 22876-032: the cosmological Li problem.

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The discovery of the 7Li abundance plateau in metal-poor dwarf stars by Spite & Spite (1982) was considered as a signature of the nucleosynthesis in the Early Universe. However, independent determination of the baryonic density from the CMB fluctuations implies a factor of 3–4 larger primordial Li abundance. More recent observations have exhibited even a lithium abundance meltdown and increased scatter towards lower metallicities.

The 6Li isotope was announced by Asplund et al. (2006) to show a plateau at a lower level, but even much larger than expected from the standard theory. However, Cayrel et al. (2007) demonstrated, using 3D-NLTE hydrodynamical simulations, that the 670.8nm Li line asymmetry associated with 6Li was probably caused by convective flows (see also Steffen et al. 2012; Lind et al. 2013).

We got UVES high-resolution (at R~110,000) and high-quality (S/N~580) spectrum of the EMP binary CS22876-032 ([Fe/H] ~ -3.7), allowing us to to investigate the 6Li/7Li at about 0.5 dex below the previous attempts in EMPs.

In this talk I will show a brief summary of cosmological Li problem and the results and the implications of the analysis of the 6Li/7Li in the EMP binary CS 22876-032 using 3D-NLTE spectral synthesis tools.

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Talk/Poster

Talk

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