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An extremely metal-deficient globular cluster in the Andromeda Galaxy

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Наблюдения на КескI/HIRES

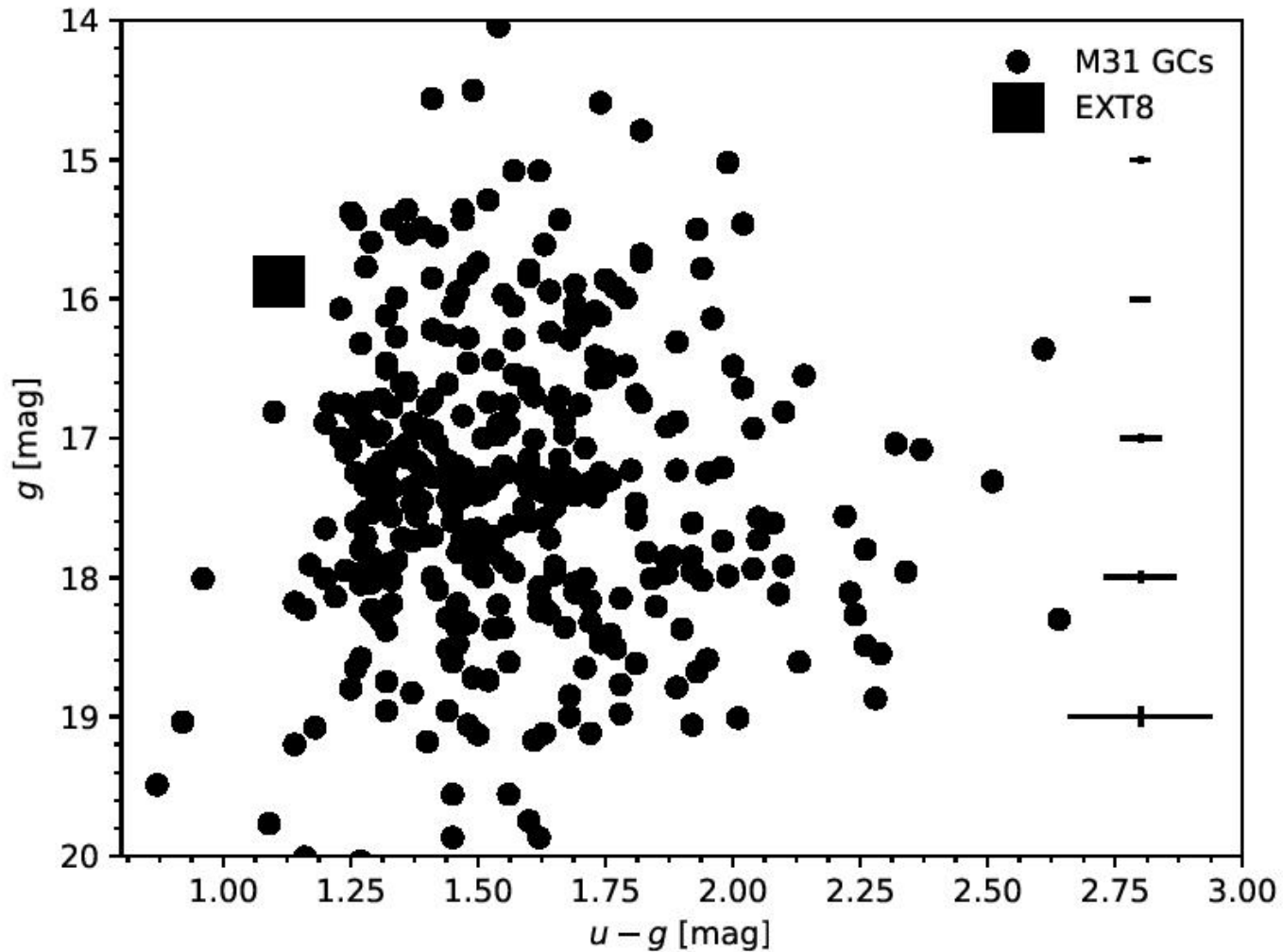
яркое скопление в 27 кпк от МЗ1, из "гладкой" составляющей.

magnitude in the g -band of $g = 15.87$, EXT8 is among the brighter GCs, and its integrated light color with respect to the u -band ($u - g = 1.11$) is less red than most of the other GCs, suggesting a low metallicity. Previous low-resolution spectroscopy yielded an age ≥ 8 Gyr and $[\text{Fe}/\text{H}]$ between -2.8 and -2.0 (*12, 13*).

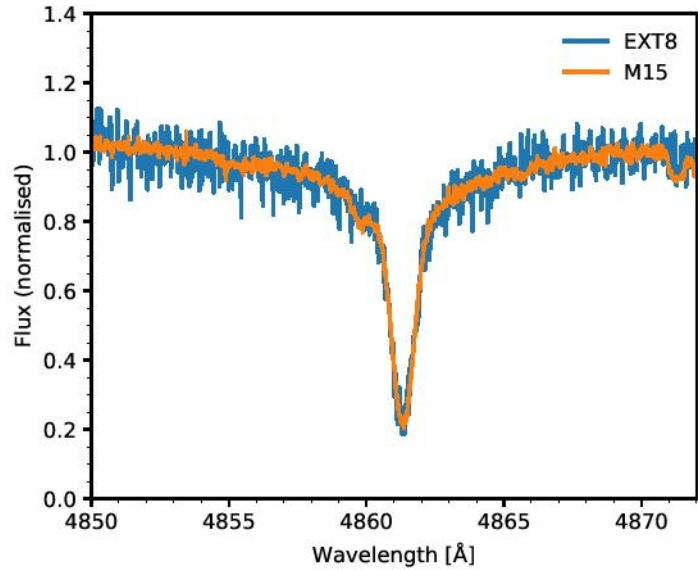
We obtained a spectrum of the integrated light of EXT8 with the High-Resolution Echelle Spectrometer (HIRES) (*14*) on the Keck I telescope on 25 Oct 2019. Given EXT8's high brightness and compact size, a total integration time of 2400 s was sufficient to obtain a signal-to-noise ratio of about 200 per \AA near the Mg I triplet at 5170 \AA . We used a slit width of 1.15'' which gave a nominal spectral resolving power $R \equiv \lambda/\Delta\lambda \approx 37000$ for wavelength λ and width $\Delta\lambda$ of a spectral resolution element. The observations covered a spectral range of 3840-8060 \AA .

Figure 2 shows the $\text{H}\beta$ lines in the spectra of EXT8 and Messier 15 (M15) for comparison, the latter being one of the most metal-poor GCs in the Milky Way (*15*). The spectrum of M15

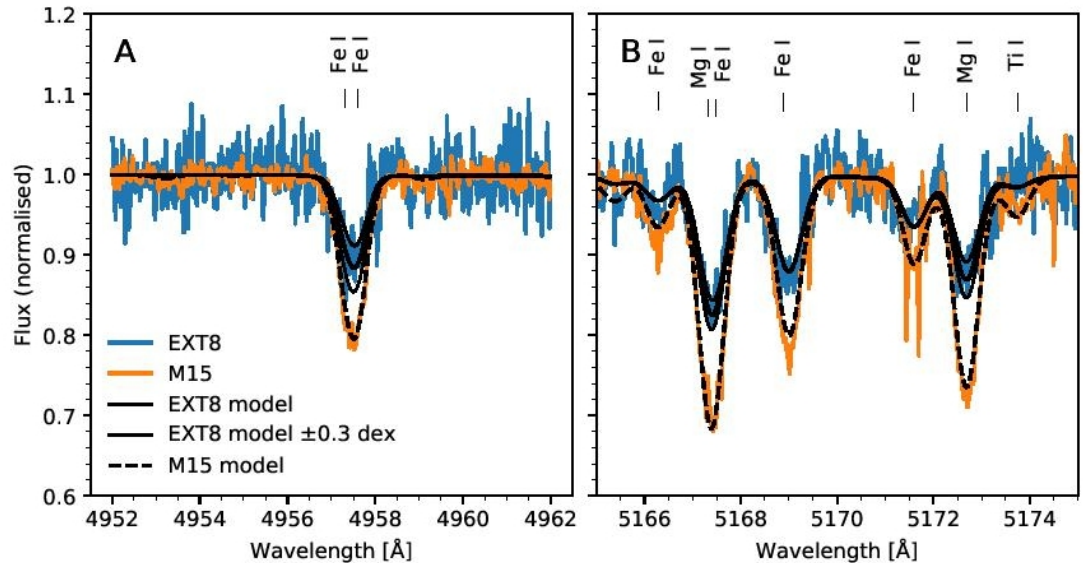
Все шаровые скопления М31



Сравнение с M15...



у которого $[Fe/H] = -2.4...$



Синтез спектров (4400-6200 А) → странноватые результаты

- $[\text{Fe}/\text{H}] = -2.91 \pm 0.04$
- $[\text{Mg}/\text{Fe}] = -0.35 \pm 0.05$
- $[\text{Si}/\text{Fe}] = +0.65 \pm 0.31$
- $[\text{Ca}/\text{Fe}] = +0.35 \pm 0.07$
- $[\text{Ti}/\text{Fe}] = +0.19 \pm 0.06$
- $\text{Sigma}_* = 13.3 \pm 0.8$ км/с
- Эфф. Радиус 2.8 пк
- Масса 1.14 млн Солнц
- $M/L_V = 2.6$

как NGC 2419!

На картинке выглядит вот так

