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CHEMICAL ANALYSIS OF SOLAR TWIN AND ANALOGUE STARS

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The existence of planets near other stars has been assumed since ancient times, but only in 1995 was a planet near a sun-like star - Pegasus 51 - discovered and confirmed. The study of exoplanets is a new and rapidly developing field of astrophysics and the discovery of this exoplanet was awarded the Nobel Prize in Physics in 2019.

Our Sun has planets orbiting around it and it is the best analysed star in the whole universe. Solar twin and analogue stars are important to exoplanet research as they have similar atmospheric characteristics to the Sun. Because of this, it is safe to assume that their evolution history should be similar as well. These stars are useful when researching the differences between stars with confirmed different planets and stars without confirmed planets.

But the success of these observations heavily depends on ground-based telescopes, whose data analysis will help to characterize the stars and, simultaneously, the planets orbiting them.

Therefore in order to better understand the planetary hosts and their planets from Moletai astronomical observatory data I determined the abundances of magnesium and silicon for 30 solar twin and analogue stars with confirmed exoplanets. In this poster, I will present my findings.

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