Shifting Ultraviolet Light to Learn About Sun-like Stars and Their Planets

Observing stars in the ultraviolent part of the spectrum is extremely useful; it would allow us to better understand stellar atmospheres, help with modeling the chemistry of any planets in their system, and also allow us to probe the chemistry of the interstellar medium- the gas between the stars.

The strongest emission line from stars in the ultraviolet is Lyman Alpha, which has been notoriously difficult to detect because it is so well absorbed by interstellar gas.

Goddard scientists came up with an ingenious trick to get around this: find stars that are moving away from us so quickly, that the Lyman Alpha line is red-shifted into a part of the spectrum that is not so attenuated by interstellar gas. The team used the Hubble Space Telescope to observe five dwarf stars (the Sun is classified as a G-type dwarf star) to successfully observe the Lyman Alpha line.

The team hopes to observe more stars with this technique, opening up essential new data for the understanding of stars and their planetary systems.

Intrinsic Lyman Alpha Profiles of High Velocity G, K, and M Dwarfs, Allison Youngblood *et al* 2022 *ApJ* **926** 129