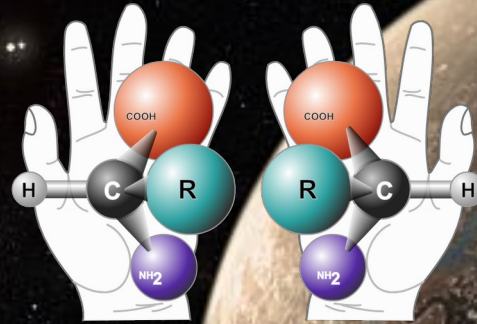


Spectropolarimetry of primitive phototrophs as a global surface biosignatures

Right: An example of a chiral molecule—in this case, an amino acid. Image source: Wikimedia Commons.

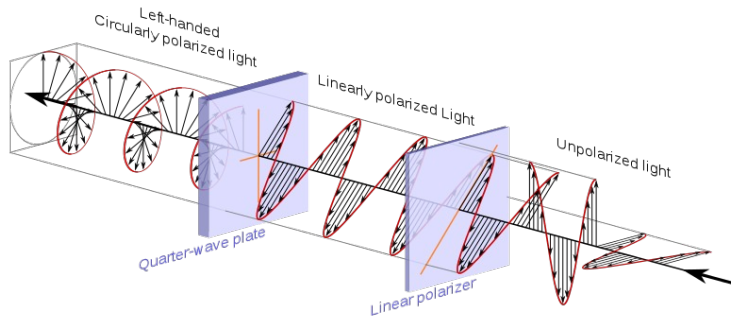


In the search for exoplanets bearing life, one possible avenue is looking for signs of biological pigments (such as chlorophyll) in the spectra of the planet

A new approach is instead of looking for specific pigments, look for signs of chirality.

When polarized light is reflected off a chiral pigment, it can become circularly polarized in the same direction as the molecules chirality. Since life overwhelmingly prefers one chiral form over another, it's possible a planet covered in phototrophs may polarize up to 1% of the light reflected off of it in the same direction. This could be detectable by spectroscopic instruments on Earth.

To learn more, see Sparks *et al.* (2020).



Light is circularly polarized in the same direction of rotation as the chiral molecule it interacts with. Image source: Wikimedia Commons.