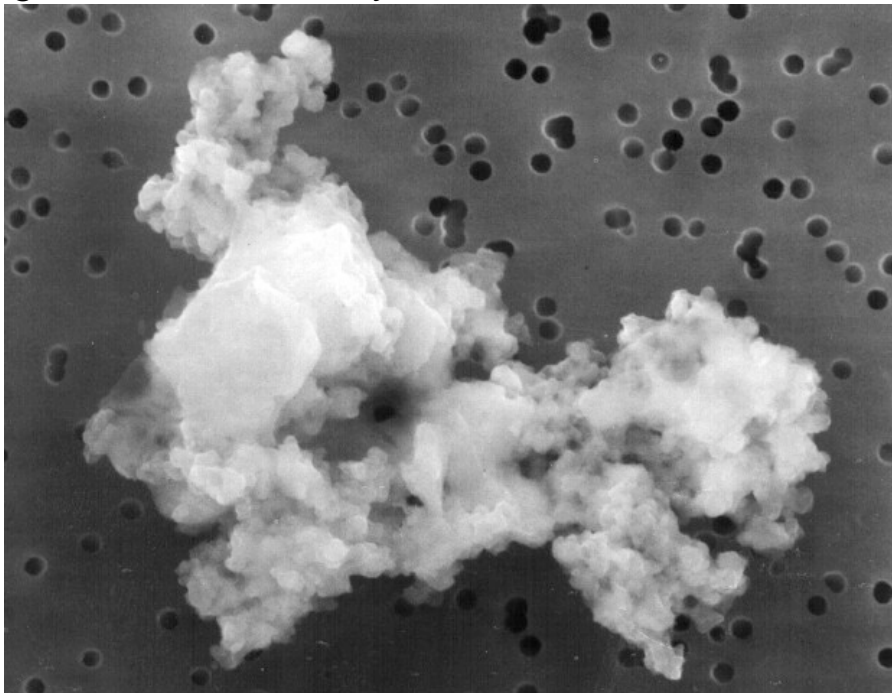


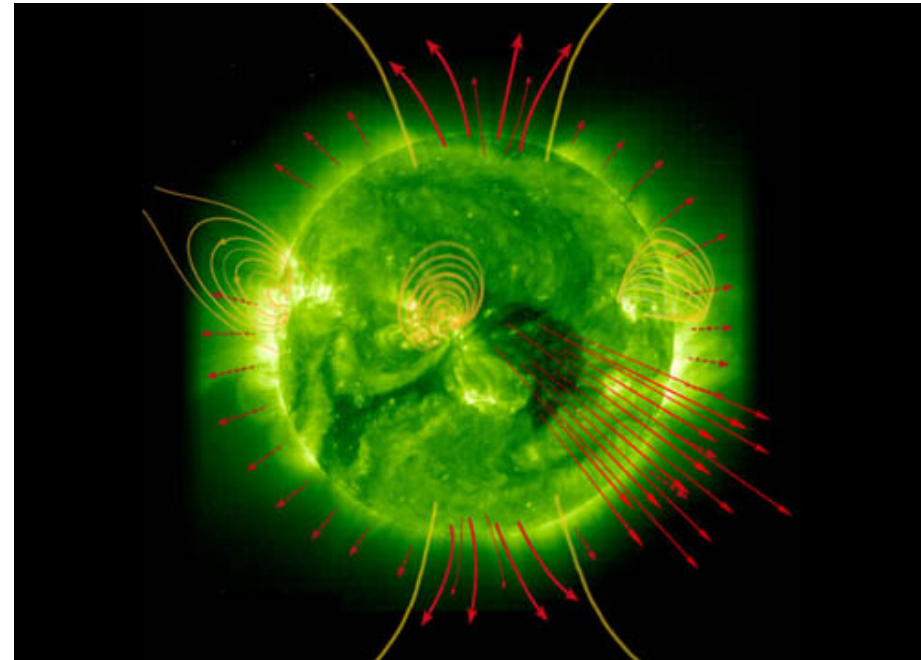
Elements for Life are Universal

A new study shows that stardust floating through the Solar System contain tiny pockets of water.

Water in these particles are formed when the interstellar dust reacts with charged particles ejected from the Sun in the solar wind. Previously, the chemical reaction responsible had been simulated in laboratories – but new measurements show that water has been found trapped inside actual interstellar dust. Earlier measurements have also identified organic compounds in stardust, which suggest that these particles could contain the basic ingredients necessary for life.



Interplanetary Dust Particle. Image Credit: NASA, *Stardust mission*



Charged particles in solar wind might produce water on stardust.
Image Credit: *September 18, 2003 image from the SOHO Extreme ultraviolet Imaging Telescope.*

The interstellar dust containing these compounds would likely continually rain down on solar system bodies – acting essentially like tiny packages with everything needed for the origin of life. Since interstellar dust exists everywhere, and the water-forming reaction would happen around any star, particles with these characteristics would also fall on any extrasolar planet orbiting a star – increasing the chances that life is Universal.

Bradley et al. (2014) PNAS