



# It's a Trap!

June 6, 2013



We know now the Universe is full of planets. Nearly one thousand alien worlds have been found orbiting around distant stars. What we don't fully understand is how they form. We know that young stars are often surrounded by rings of dust, like the one in this picture. But how do tiny grains of dust in the discs around young stars grow bigger and bigger, to become rubble and comets and eventually giant, rocky planets like the one we live on? This is a mystery that the [ALMA telescope](#) is trying to solve.

The mystery in our current ideas of planet formation is how the bigger grains survive and grow. Larger lumps of rock must crash into each other at very high speeds. This means that they'll most often smash each other to little pieces and be sent back to square one. And even when this doesn't happen, the larger grains will 'sink' inwards towards their parent star, with no chance of growing any further, like a heavy boulder sinking into quicksand.

The dust needs some kind of a safe haven where it can grow until the clumps are big and tough enough to survive on their own. You can see this process happening in a cool animation

video [here](#). Until now, these so-called safe 'dust traps' had never been seen. But astronomers have finally caught one on camera!

Nienke van der Marel, an astronomer working at Leiden Observatory in the Netherlands who helped make this discovery, says "It looks like we are seeing a kind of comet factory. The particles in this dust trap can grow up to a few kilometres across!"

## COOL FACT

One of the biggest surprises about this discovery was the shape of the dust trap. Instead of the ring the astronomers had expected to see, they found a very clear cashew nut shape!

This Space Scoop is based on Press Releases from [NAOJ](#), [ESO](#).  
[NAOJ](#) [ESO](#)



This website was produced by funding from the European Community's Horizon 2020 Programme under grant agreement n° 638653