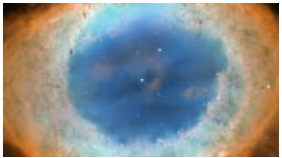








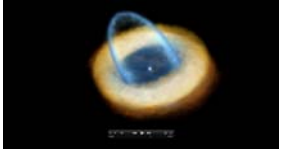
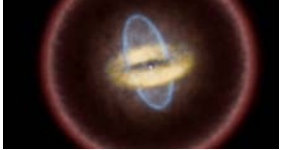






Hubblecast Episode 66: Hubble uncovers the secrets of the Ring Nebula		
00:00 [Narrator] 1. The fiery subject of this new Hubble image may seem like it would be more at home in a Tolkien novel, but it is actually a nebula known as the Ring Nebula, or Messier 57. Although this nebula is one of the most famous objects in our sky, more than 200 years after its discovery astronomers are still revealing some of its secrets.		
00:26 [Intro]		
00:43 [Dr J] 2. Hello, and welcome to another episode of the Hubblecast! Now there are many, many very distinctive and beautiful nebulae out there. And Hubble has imaged many of these over the past twenty years or so. One of the most famous of these nebulae is an object called Messier 57, also known by its more popular name: the Ring Nebula.		 
01:20 [Narrator] 3. Fairly bright and close to Earth, the Ring Nebula lies just over 2 000 light-years away from us. It is a prominent example of a planetary nebula, where a dying star like our Sun has pushed its outer layers out into space. The nebula closely resembles the equally colourful Helix Nebula, which formed in the same way. Both are common observational targets and have been well studied by both professional and amateur astronomers for years.		 
02:01 [Dr. J] 4. The Ring Nebula was discovered in the late 18 th century. But its true shape and structure have remained somewhat unclear — until now.		

<p>A team of astronomers has used the NASA/ESA Hubble Space Telescope, alongside existing ground-based data, to explore the Ring Nebula in depth. The astronomers wanted to better understand the nebula's structure, its evolution, physical conditions, and motion. And it turns out that the Ring Nebula is not in fact very ring-shaped after all.</p>		
<p>02:41 [Dr. J] 5. From Earth's perspective, the Ring Nebula looks like a simple elliptical shape with a fuzzy boundary. But the new Hubble observations show clearly that the nebula is actually shaped more like a distorted doughnut.</p> <p>We are looking almost directly down one the poles of the structure, with a brightly-coloured barrel of material stretching away from us.</p>		 
<p>03:06 [Narrator] 6. Although the centre of this doughnut may look empty, it is full of lower-density material that stretches both towards and away from us, creating a shape a little like a rugby ball slotted into the doughnut's central gap. The space surrounding the nebula is turbulent and full of knotty structures that formed in the nebula's past.</p> <p>This new research disagrees with previous models of the Ring Nebula, which had suggested that the object has a less spherical shape.</p>		 
<p>03:46 [Dr J] 7. If we were able to rotate the Ring Nebula by 90 degrees and view it side-on, it has been suggested that it would actually look more like Messier 76, a nebula also known as the "Little Dumbbell".</p> <p>Now these nebulae are formed of ionised gas from the atmosphere of a dying star. At the end of their lives these stars throw off their outer layers and turn into very small, hot bodies known as white dwarfs, the final evolutionary stage of a star like our own Sun.</p>		 
<p>04:19 [Dr J] 9. Thanks to these new observations from Hubble, we now have a much better understanding of the true structure of the Ring Nebula.</p> <p>This is Dr. J signing off for the Hubblecast. Once again, nature has surprised us beyond our wildest imagination.</p>		

Ends 04:52