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<p>Video Podcast Episode 11: M74 – A grand design in a galactic festoon</p> <p>FOR IMMEDIATE RELEASE 15:00 (CET)/9:00 AM EST 29 November, 2007</p>		
<p>00:00 [Visual starts]</p> <p>00:02 [Narrator] The galaxy Messier 74 lies at a distance of over 30 million light years. In this latest image from the NASA/ESA Hubble Space Telescope the enormous swirls of this stunning spiral galaxy arc across space, adorned with glowing pink regions of hydrogen gas and lit by the pale blue light of millions of newly formed stars.</p> <p>00:40 [Woman] This is the Hubblecast! News and Images from the NASA/ESA Hubble Space Telescope. Travelling through time and space with our host Doctor J a.k.a. Dr. Joe Liske.</p> <p>00:53 [Dr. J] Welcome to the Hubblecast! Over the course of its seventeen years in space the Hubble Space Telescope has imaged literally thousands of galaxies. However this latest image from the orbiting space observatory is clearly a red hot candidate for being one of the finest images of a galaxy ever seen. This striking image from Hubble shows Messier 74 a spiral galaxy located about 32 million light years away from Earth. In the new image, Hubble reveals the light from billions of</p>		<p>Images cross-fading of M74 image sections.</p> <p>Image explosion</p> <p>Hubblecast Logo + web site</p> <p>Presented by ESA and NASA</p> <p>TITLE Slide: Episode 11: M74 – A grand design in a galactic festoon</p> <p>Nametag</p> <p>Virtual studio: Dr J on camera</p> <p>M74 image pan.</p>

stars in the spiral arms of this stunning galaxy, laced with delicate tendrils of dust silhouetted against the swirling arms.

01:35

[Narrator]

This galaxy (also known as NGC 628) was first observed in 1780 by a French astronomer called Pierre Méchain who was searching the sky for objects that might be comets.

Soon after he discovered the galaxy, Méchain told his good friend Charles Messier, who then listed it as M74 in his now famous catalogue of deep sky objects. Of all the objects in Messier's catalogue, number 74 has the lowest surface brightness and is so difficult for amateur astronomers to spot through a telescope that it has been given the nickname "The Phantom Galaxy".

03:07

[Dr. J]

The stunning new image also shows a sprinkling of bright red regions decorating the spiral arms. These are vast, relatively short-lived, clouds of hydrogen gas which glow due to the strong radiation from hot, young stars. Astronomers call these clouds HII regions.

The really bright stars in the image are actually foreground stars located within our own Milky Way galaxy. They are much closer and are not part of Messier 74 behind them.

Hubble's image also shows an intricate network of dust lanes weaving through the galaxy's spiral arms. These dusty swirls have partly been created by previous generations of stars which have seeded the galaxy with newly formed chemical elements when they die as supernovae. In fact two such supernovae have been seen to explode in Messier 74 in recent years.

04:16

[Narrator]

In this image of Messier 74 we can see the blue light from millions of young blue stars in the two main spiral arms of the galaxy. These spiral arms are not actually static 'arms' like spokes on a wheel. They are in fact density waves and move around the galaxy's disc compressing gas – just as sound waves compress the air on Earth – creating new generations of young blue stars.

Because of the elegant symmetry of its spiral arms astronomers call this a 'grand design spiral'. Messier 74 bears a strong resemblance to another 'grand design spiral', Messier 51, the Whirlpool Galaxy in the constellation of Canes Venatici the Hunting Dogs.

04:59

[Dr. J]

Messier 74 is arguably one of the most photogenic galaxies Hubble has ever observed. With its myriad of stars and delicate dust lanes it is a place of serene beauty and grandeur on a

Zoom though vaults to an old fashioned telescope into a zoom onto M74.

Virtual studio: Dr J on camera

Point/clicks/zoom in on HII regions

Point/clicks/zoom in on foreground stars

Point/clicks/zoom in on in on dust lanes

M74 pan

M51 Hubble image side by side with M74

Virtual studio: Dr J on camera

Image behind Dr J

galactic scale.

This is Dr. J signing off for the Hubblecast.

Once again nature has surprised us beyond our wildest imagination ...

05:21

[Outro]

Hubblecast is produced by ESA/Hubble at the European Southern Observatory in Germany.

The Hubble mission is a project of international cooperation between NASA and the European Space Agency.

05:44 END