
NASA
EINSTEIN RING
SPOTTED BY HUBBLE

1
00:00:06,070 --> 00:00:02,950
this image taken with the hubble space

2
00:00:08,470 --> 00:00:06,080
telescope shows a distant galaxy located

3
00:00:10,390 --> 00:00:08,480
in the constellation fornax

4
00:00:13,589 --> 00:00:10,400
it is the largest and one of the most

5
00:00:15,509 --> 00:00:13,599
complete einstein rings ever discovered

6
00:00:17,990 --> 00:00:15,519
this object's unusual shape is the

7
00:00:20,230 --> 00:00:18,000
result of gravitational lensing

8
00:00:22,870 --> 00:00:20,240
albert einstein in his general theory of

9
00:00:26,710 --> 00:00:22,880
relativity first theorized that a large

10
00:00:28,870 --> 00:00:26,720
gravitational field could act as a lens

11
00:00:31,429 --> 00:00:28,880
a huge amount of matter like a cluster

12
00:00:33,750 --> 00:00:31,439
of galaxies creates a gravitational

13
00:00:35,430 --> 00:00:33,760

field that distorts and magnifies the

14
00:00:38,630 --> 00:00:35,440
light from distant galaxies that are

15
00:00:40,389 --> 00:00:38,640
behind it but in the same line of sight

16
00:00:43,190 --> 00:00:40,399
the effect is like looking through a

17
00:00:44,790 --> 00:00:43,200
giant magnifying glass

18
00:00:47,029 --> 00:00:44,800
in this case the light from the

19
00:00:49,270 --> 00:00:47,039
background galaxy was distorted into the

20
00:00:51,990 --> 00:00:49,280
curve we see by the gravity of the

21
00:00:53,830 --> 00:00:52,000
galaxy cluster sitting in front of it

22
00:00:55,750 --> 00:00:53,840
the near exact alignment of the

23
00:00:57,990 --> 00:00:55,760
background galaxy with the central

24
00:01:00,310 --> 00:00:58,000
elliptical galaxy of the cluster seen in

25
00:01:02,229 --> 00:01:00,320
the middle of this image has warped and

26
00:01:04,869 --> 00:01:02,239
magnified the image of the background

27
00:01:06,950 --> 00:01:04,879
galaxy around itself into an almost

28
00:01:08,950 --> 00:01:06,960
perfect ring

29
00:01:11,190 --> 00:01:08,960
to get this clear an image of the far

30
00:01:13,350 --> 00:01:11,200
distant galaxy on its own hubble's

31
00:01:16,390 --> 00:01:13,360
eight-foot primary mirror would have to

32
00:01:18,630 --> 00:01:16,400
have a diameter of 157 feet

33
00:01:20,550 --> 00:01:18,640
objects like these allow us to research

34
00:01:23,190 --> 00:01:20,560
galaxies that would otherwise be too

35
00:01:25,910 --> 00:01:23,200
faint and distant to see in such detail

36
00:01:27,310 --> 00:01:25,920
helping us learn more about our amazing