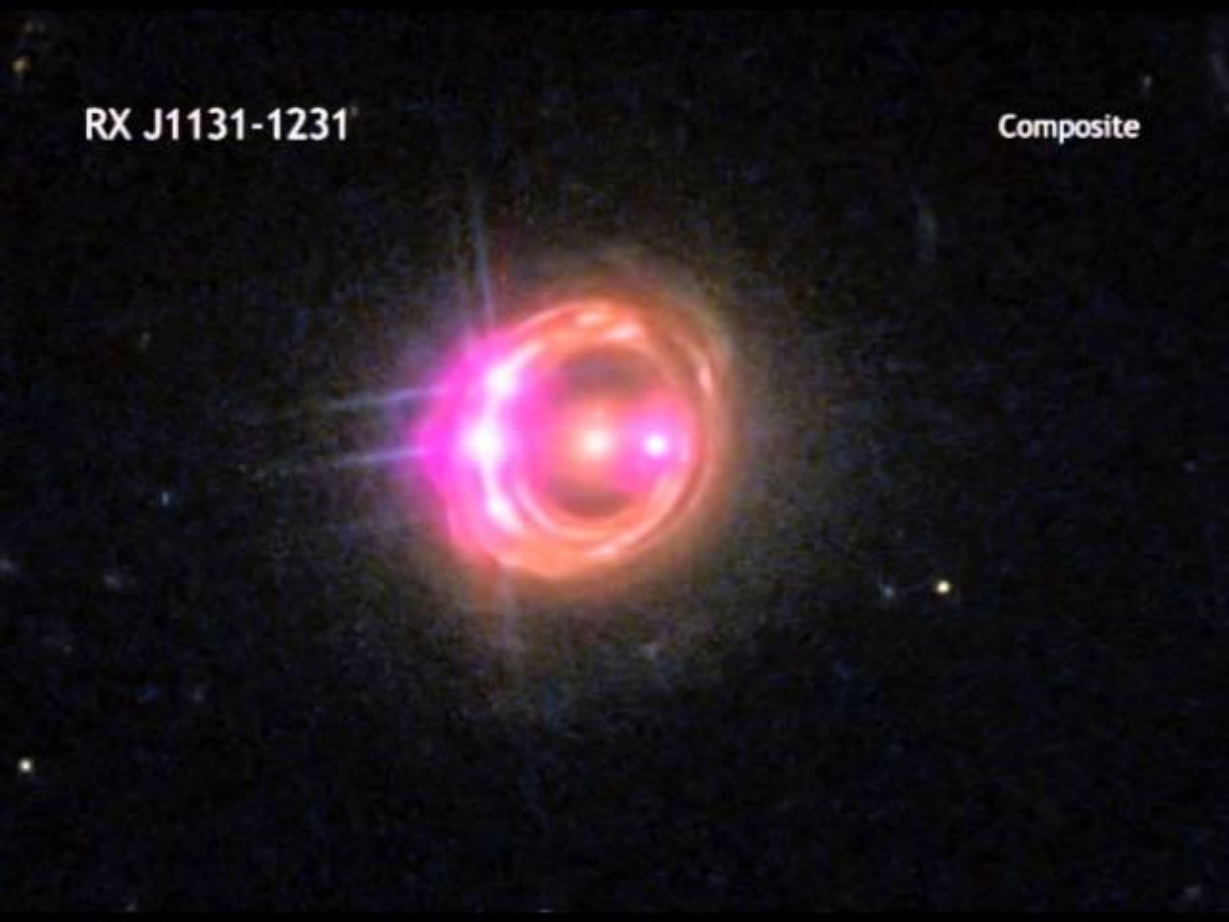
RX J1131-1231
Composite

1
00:00:01,780 --> 00:00:06,370
Black holes seem like such mysterious and
complicated objects.

2
00:00:06,370 --> 00:00:12,969
On one hand, they are, and astronomers have
been studying them for decades to learn more.

3
00:00:12,969 --> 00:00:17,350
On the other, black holes are actually quite
simple.

4
00:00:17,350 --> 00:00:23,130
By this, we mean that black holes are defined
by just two simple characteristics: their

5
00:00:23,130 --> 00:00:25,880
mass and their spin.

6
00:00:25,880 --> 00:00:31,480
While astronomers have long been able to measure
black hole masses very effectively, determining

7
00:00:31,480 --> 00:00:34,079
their spins has been much more difficult.

8
00:00:34,079 --> 00:00:41,030
A new result from researchers using data from
NASA's Chandra X-ray Observatory and ESA's

9
00:00:41,030 --> 00:00:46,700
XMM-Newton takes a step in addressing the
spin question.

10
00:00:46,700 --> 00:00:53,219
By a lucky alignment, the light from a quasar
some 6 billion light years has been magnified

11
00:00:53,219 --> 00:00:58,559

and amplified due to an effect called gravitational lensing.

12
00:00:58,559 --> 00:01:04,080
This allowed researchers to get detailed information about the amount of X-rays seen at different

13
00:01:04,080 --> 00:01:05,180
energies.

14
00:01:05,180 --> 00:01:11,671
This, in turn, gave the researchers information about how fast the supermassive black hole

15
00:01:11,671 --> 00:01:16,160
at the center of the quasar is spinning.

16
00:01:16,160 --> 00:01:22,100
When combined with the spins from other black holes using more indirect methods, astronomers