

MITOCW | Investigation 5, Part 4

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MARK HARTMAN: And this is an animation of what they actually think is going on. So I'll give you the basics about it. But if you want to, I encourage you to read through all of this. But in this case, this yellow object is the thing that's giving off X-rays. And it's not the neutron star itself, right? It's actually a big cloud that is kind of like a corona around a regular star, but we have a corona around a neutron star, and it's many, many times larger. So that's giving off X-rays.

This is the edge of the accretion disk. And you can see that it's not always the same thickness, right? So the edge of the accretion disk is actually blocking out some of the X-ray emission from this object. So they're still not exactly sure where all the X-ray emission is coming from. But you're seeing, then, the companion star, which is a low mass star, is orbiting around.

But what I want you to do is just take a look at this. So this is the edge of the accretion disk. [? So ?] the yellow thing is the corona around the neutron star, and the blue thing is the low mass star that's not giving off X-rays. So read through that a little bit. And I want you to think about-- I mean, pay close attention. What is it that's causing that first dip? What's causing the second dip?

I'm sorry you can't slow this down any. But this is what a real science team had come out with as a model for what they think is going on. And they're showing here the actual light curve over and over and over again. And they're saying, this is the best model. We changed a bunch of parameters. We decided this is what we think makes sense to us. And as you're looking at this and thinking back about all the X-ray binary stuff that you have thought about, what I want to do is to have everybody contribute at least one question, hopefully two or three, that they have about X-ray binary [? object. ?]