This image features a spectacular set of rings around a black hole, captured using NASA’s Chandra X-ray Observatory and Neil Gehrels Swift Observatory. The X-ray images of the giant rings reveal information about dust located in our galaxy, using a similar principle to the X-rays performed in doctor’s offices and airports. The black hole is part of a binary system called V404 Cygni, located about 7,800 light years away from Earth. The black hole is actively pulling material away from a companion star — with about half the mass of the Sun — into a disk around the invisible object. This material glows in X-rays, so astronomers refer to these systems as “X-ray binaries.”