



Chandra Science Highlight

Nova V745 Sco: A New 3-D Model

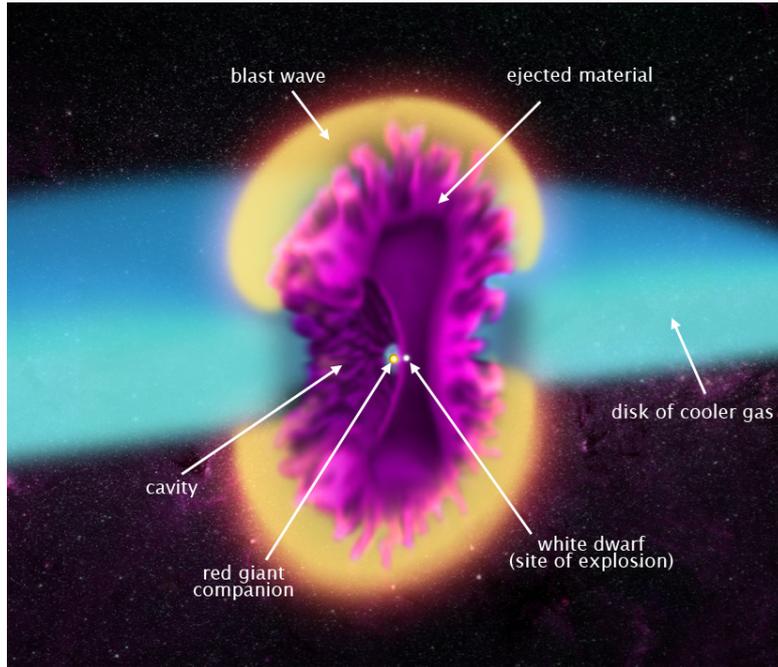


Illustration of a 3-D model of Nova V745 Sco showing the blast wave from the explosion (yellow), ejected material (purple), surrounding disk of cooler material (blue). Also shown are the white dwarf, the red giant companion, and a cavity produced by the ejecta striking the red giant.

- V745 Sco is a close binary star system comprising a red giant and white dwarf star.
- The intense gravity of the white dwarf pulls the outer layers of the red giant onto the white dwarf.
- When the accumulated material on the white dwarf surface reaches a critical mass, a thermonuclear explosion occurs, ejecting the outer layers in a nova outburst.
- Astronomers used Chandra observations of V745 Sco made about 2 weeks after its most recent outburst in 2014 to construct the 3-D model of the explosion illustrated here.
- Most of the X-ray emission is produced by the blast wave colliding with the disk.

Distance estimate: 25,000 light years

Credit: NASA/CXC/M.Weiss

Instrument: ACIS

Reference: Orlando, S. et al. 2017 MNRAS 464, 5003;
arXiv:1610.05692

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