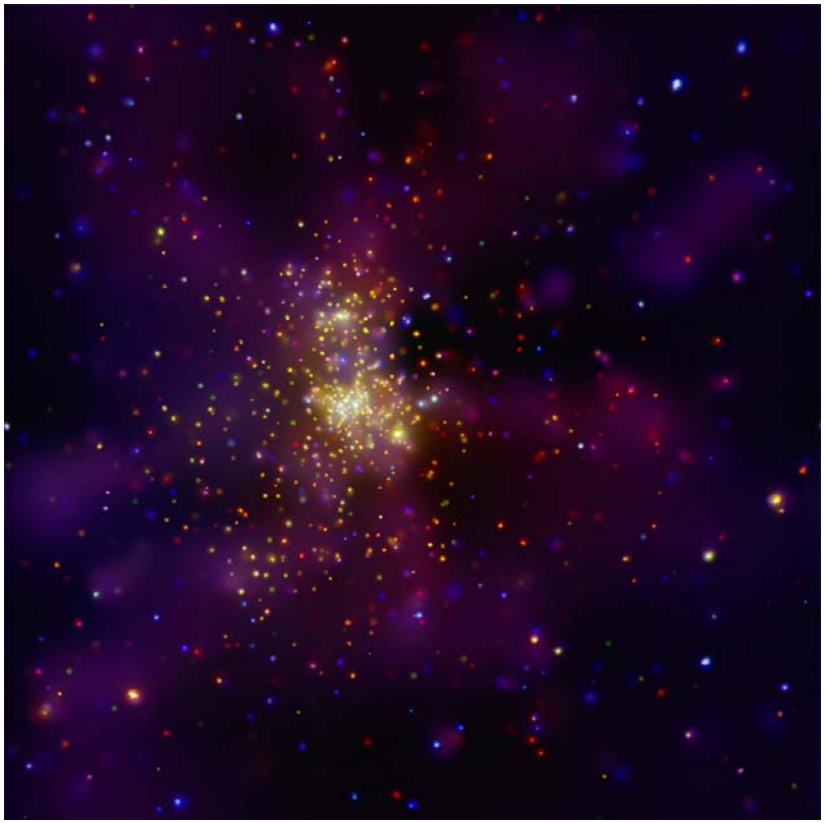
Chandra Science Highlight

X-ray Image of the Young Star Cluster Westerlund 2

Chandra X-ray Observatory ACIS image.



Scale: Image is 8.4 arcminutes across

Estimated distance: About 25,000 light years

Credit: NASA/CXC/Univ. de Liege/Y. Naze et al

Reference: Y. Naze et al, arXiv:0801.0647

Until recently little was known about Westerlund 2 because it is heavily obscured by dust and gas. Infrared and X-ray observations have revealed Westerlund 2, which has an estimated age of 1 - 2 Myr, to be one of the most interesting star clusters in the Milky Way galaxy. This Chandra image of Westerlund 2 shows low energy X-rays (0.3-1.0 keV) in red, intermediate energy X-rays (1.0-2.0 keV) in green and high energy X-rays (2.0-10.0 keV) in blue. The image shows a very high density of massive stars that are bright in X-rays, plus diffuse X-ray emission.

- Westerlund 2 contains some of the hottest, brightest and most massive stars known.
- WR20a, the massive double star system containing stars with masses 82 and 83 times that of the sun, is visible as the bright yellow point just below and to the right of the cluster's center.
- Dense stellar winds – streams of gas flowing away from these two massive stars – collide and produce intense X-ray emission.
- This collision is seen at different angles as the stars orbit around each other every 3.7 days.
- Several other bright X-ray sources may also show evidence for collisions between winds in massive binary systems.