

KINEMATICS

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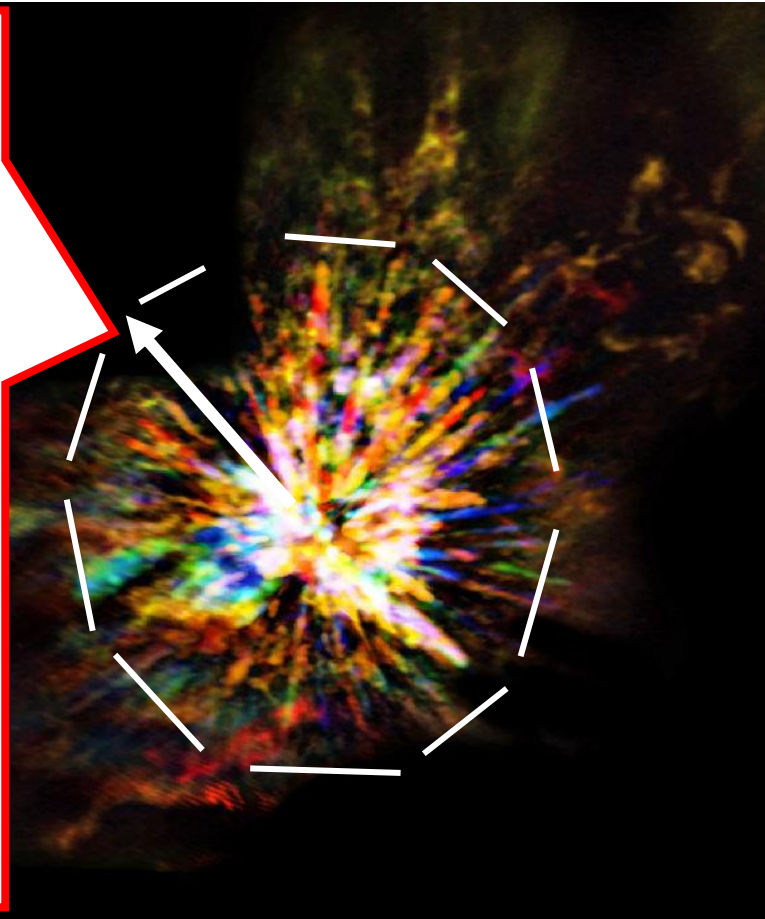
Northridge Campus, Stone hollow Drive, Austin Tx. jpcise@austincc.edu & New York Times, May 8,2017 by Nicholas Bakalar

Capturing the Aftermath of a Star Collision 1,900 Years Ago

INTRODUCTION

A: According to John Bally, Planetary Sci. Dept. & U. of Col. Boulder, in article on "Alma View of the OMCI Explosion in Orion", after collision of stars the streamer radial velocities are $V = 150$ km/s.

The gases & dust have been moving from the center of the collision for 1900 years. Let $R =$ distance streamers have moved in 1900



QUESTIONS: First read the box at left. (a) Find number of seconds in 1900 years? (b) Find distance R (in units of meters) the steamers have moved in the past 1900 years?, (c) Find distance light travels in one year (called a light year)? (d) Find R (distance streamers moved outward in 1900 years} in units of light years?

HINTS: $X = v t$, speed of light = $c = 3 \times 10^8$ m./s., 365 days/yr.. 24 hrs./day, 3600 s./hr.

ANSWERS: (a) 6×10^{10} s. (b) $R = 9 \times 10^{15}$ m. (c) lt. yr. distance = 9.46×10^{15} m. , (d) $R = \sim 0.9513$ Lt. yrs.

About 1,900 years ago and 1,350 light years away, stars in a giant gas cloud behind the Orion constellation collided, ejecting two other young stars. With a telescope, the blast would have been visible from Earth about 500 years ago. Now, with the Atacama Large

Millimeter/submillimeter Array, the most powerful telescope on Earth, astronomers have captured pictures of the explosion. According to John Bally, who published a study of the event in The Astrophysical Journal, the debris is still flying and will gradually fade from view. What will remain are the ejected stars — pushed hundreds of light years away from Orion, runaways born in a burst of cosmic fireworks.