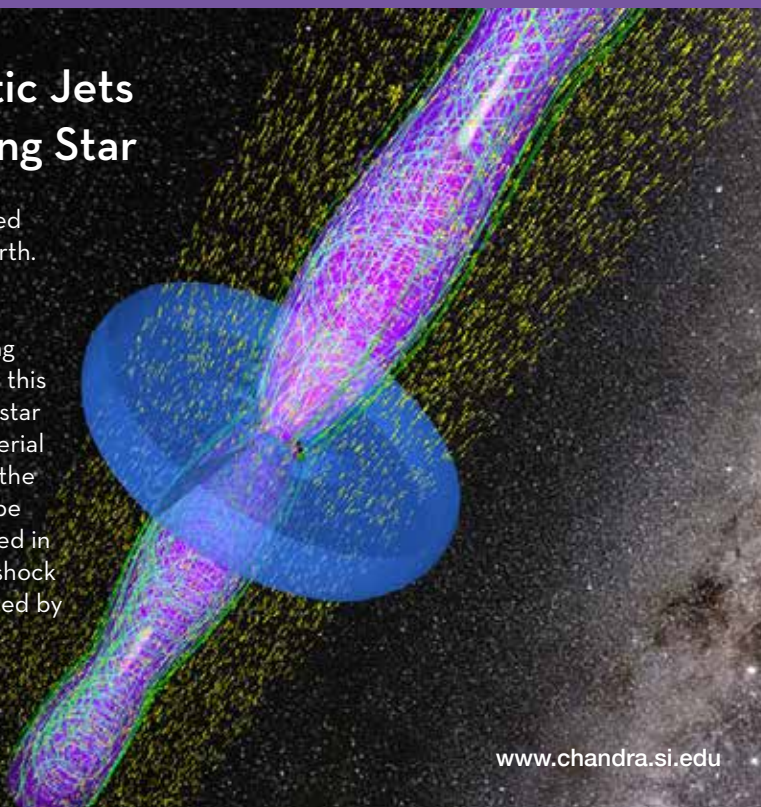


# 3D PRINT YOUR OWN PROTOSTAR

## DG Tau: Energetic Jets from a Developing Star

A young star, DG Tau, is located about 450 light years from Earth. Material can fall onto such a developing star, known as a “protostar,” from a surrounding disk. The interaction between this rotating disk and the nascent star leads to the narrowing of material into jets that blast away from the magnetic poles of the would-be star. These stellar jets, detected in X-rays by Chandra, generate shock waves similar to those produced by supersonic jets.



# How to Create Your Own Protostar

3D files and instructions are available at [chandra.si.edu/3dprint](http://chandra.si.edu/3dprint)



*Credit: INAF-Osservatorio Astronomico di Palermo/  
Salvatore Orlando*

This three-dimensional (3D) visualization is based on data from NASA's Chandra X-ray Observatory. While unable to fly to such a distant object and zoom around it, astronomers can use such data to learn about the geometry, velocity, and other physical properties of the cosmic source.

Stars, like babies, make quite a fuss in their first days after birth. Protostars are stars in their youngest, "neonatal" stage and are typically marked by powerful X rays from plasma ten times hotter and 100 to 100,000 times brighter than the flares on our Sun.

Powerful X-ray jets might develop at some stage during the evolution of most young stars. They could, for example, have existed during the early stages of the solar system. DG Tau has about the same mass as the Sun, but is much younger with an age of about one million years, rather than about 4.5 billion years.

Select the 3D printer of your choice to make your own DG Tau system. Download the files from [chandra.si.edu/3dprint/](http://chandra.si.edu/3dprint/) For our 3D-printed example one color of PLA filament was used. Support structures were required, and removed after printing by using a dissolvable substrate with minimal hand-cleaning required.