

HARCOURT C. "ACE" VERNON MEMORIAL LECTURE

Thursday, April 27, 2017 | 7:30 PM | Clayton Hall Conference Center



# Brown Dwarfs: Cooler Than the Coolest Stars



**Emily Rice**  
Assistant Professor,  
College of Staten Island,  
City University of New York

**B**rown dwarfs are mysterious celestial objects that form like stars do, but then cool and fade to resemble gas giant planets like Jupiter.

Prof. Emily Rice will explain how studying the atmospheres of brown dwarfs, particularly "young" ones less than 100 million years old, will advance our understanding of gas giant planets around stars other than the sun.

In addition to her teaching and research at the College of Staten Island, City University of New York, Rice is a research associate at the American Museum of Natural History and co-leads the Brown Dwarfs in New York City (BDNYC) research group.



### Chillin' in Space

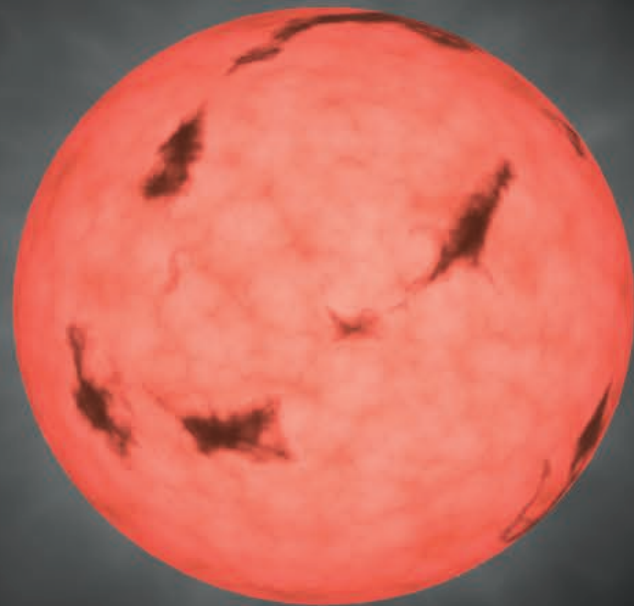
This is what a "Y dwarf" might look like. Y dwarfs are the coldest star-like bodies known, with temperatures that can be even cooler than the human body. Illustration courtesy of NASA.

**Free and open to the public.**  
**Please register online at [mountcuba.org](http://mountcuba.org)**

Sponsored by Delaware Asteroseismic Research Center at the University of Delaware,  
Mount Cuba Astronomical Observatory & Mount Cuba Astronomical Foundation



# Brown Dwarfs: The Missing Link?



The Sun

M Dwarf

L Dwarf

T Dwarf

Jupiter

Are brown dwarfs the missing link between stars and planets? This artist's rendition plots all the objects to the same scale. At left is the sun. To its right is a star with very low mass called an "M dwarf," then a couple of brown dwarfs—a hotter "L dwarf" and a cooler "T dwarf"—and then the planet Jupiter.

These objects have masses ranging from 1,050 times that of Jupiter (for the sun) through 75, 65, 30, and 1 Jupiter mass for the M dwarf, L dwarf, T dwarf and Jupiter, respectively. Despite the range in mass, all four low-mass objects are about the same size—10 times smaller than the diameter of the sun.

**Learn more:**

**Delaware Asteroseismic Research Center at UD**  
[www.physics.udel.edu/darc](http://www.physics.udel.edu/darc)

**Mount Cuba Astronomical Observatory**  
[mountcuba.org](http://mountcuba.org)