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Cover design by **Sarah Savić Kallesøe** taken at **The SFU Trottier Observatory**

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Cover Image Description

This is the Bubble Nebula and it happens to be the birthplace of a future star. The Bubble Nebula is an emission nebula, meaning this beautiful gaseous structure emits its own light. The predominantly red colour of this interstellar cloud is due to the ionization and light emission of hydrogen gas, the most common element in the universe. Emission nebulae, like the Bubble Nebula, are areas of star formation and can be found in the spiral arms of most galaxies, such as the Milky Way. The Bubble Nebula is located in the constellation Cassiopeia approximately 7,000 light years away from Earth and is estimated to be 300,000 years old. The diameter of the sphere in the centre is 7 light years. Almost four of our Solar Systems, up to and including the Oort Cloud, can be lined up end to end within that little sphere. The diameter of the sphere is also almost twice the distance from our Solar System to the nearest star, Alpha Centauri. It's hard to grasp the enormity of the Bubble Nebula when it's unfathomably far away.

This photo was captured and processed by Sarah A. Savić Kallesøe, an undergraduate student at Simon Fraser University in Burnaby, Canada on September 29, 2016. The total exposure for this image is approximately 3.5 hours, using hydrogen alpha narrowband, red, green, blue, and luminance filters. Each frame had an exposure of 120 seconds. The luminance frames were captured with 2×2 binning and the colours and hydrogen alpha were taken with 4×4 binning. A total of 60 images were selected to create this image.

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