

# MEANINGFUL TRANSIENT SCIENCE!

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# Abstract

Fortunately there are still many open questions about this wild and wondrous cosmos that we find ourselves in.

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# 1 | Introduction

*“For a moment, nothing happened. Then, after a second or so, nothing continued to happen.” "*

— Douglas Adams, *The Hitchhiker’s Guide to the Galaxy*

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Pulsars are a type of neutron star, which is the dense, collapsed core of a massive star that has exploded as a supernova. Pulsars are named for the way they emit bursts of electromagnetic radiation, or light, which can be observed from Earth as pulses. These bursts are created as the neutron star rotates, and a beam of electromagnetic radiation is produced from its magnetic poles. As the beam passes by Earth, it appears as a pulse of light.

Pulsars are some of the most extreme objects in the universe, with densities so high that a sugar cube’s worth of material from a pulsar would weigh as much as all the humans on Earth combined. They are also incredibly fast-spinning, with some pulsars completing a full rotation in just a few milliseconds.

So, to sum it up in slang, pulsars are like cosmic lighthouses that spin super fast and are super dense, shooting out beams of light that we can see as pulses. Cool, right?

## 1.1 Background