Astronomical Transients

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Recently, an Indian-American astronomer **Shrinivas Kulkarni** was awarded the **Shaw Prize for Astronomy in 2024** for his work on the physics of **astronomical transients.**

- **Astronomical transients** are **celestial objects or phenomena** that **change their brightness** over a relatively **short period of time,** as compared to longer periods of time over which stars and galaxies change and develop.
- Studying these energetic, short-lived cosmic events could unlock secrets of the universe's most powerful objects and physical laws. Some of the different types of astronomical transients are:
    - **Supernovae:** When the cores of massive stars collapse due to the depletion of fusionable elements, their outer layers explode, releasing immense energy and briefly outshining their entire host galaxy.
    - **Active galactic nucleus (AGN):** Supermassive black holes at the cores of massive galaxies sometimes actively consume surrounding matter. This interaction causes the matter to emit light with varying brightness.
    - **Fast radio bursts (FRBs):** FRBs are powerful bursts of radio waves that can release as much energy in a few thousandths of a second as the sun emits in three days.

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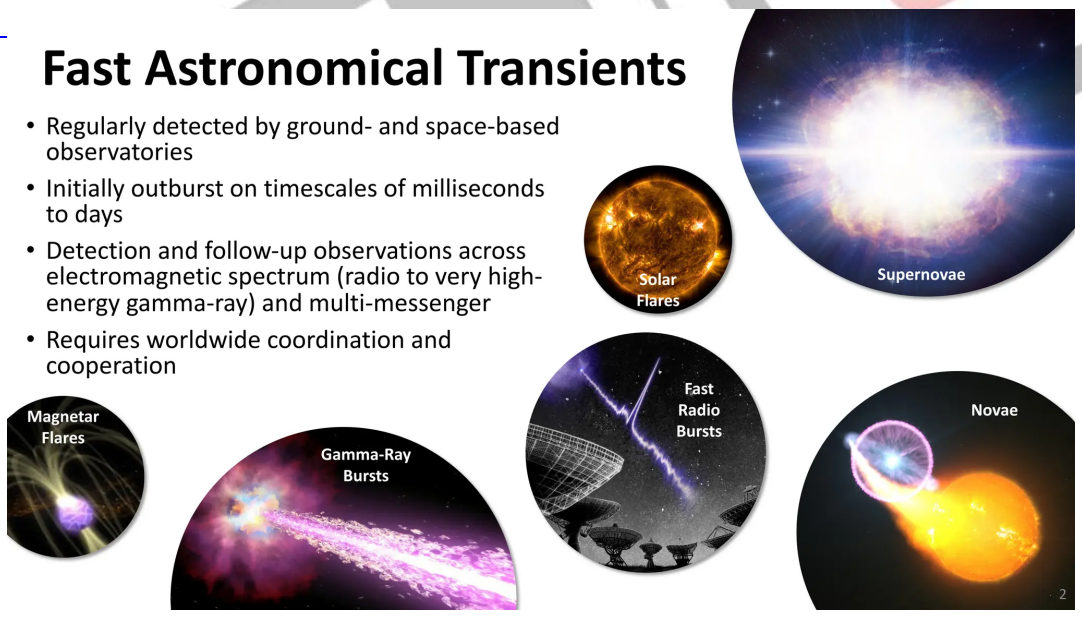

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