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## **The 2024 Herschel Medal is awarded to Professor Emerita Roberta Humphreys**

Professor Emerita Roberta Humphreys is awarded the RAS Herschel medal for her discovery of the empirical upper luminosity boundary for the most massive stars in the Hertzsprung-Russell diagram.

This result, based on many years of observations, was published in a seminal paper, Humphreys and Davidson 1979, and is now known as the Humphreys-Davidson Limit. This limit was not predicted by theory or the stellar structure and evolutionary models at that time.

The observed deficit of evolved stars at the highest luminosities implies an upper limit to the masses of stars that become red supergiants, thus altering the previously expected evolution of the most massive stars across the HR Diagram.

Humphreys and Davidson suggested that this was due to instabilities leading to high mass loss events. The recognition of this upper luminosity boundary in the HR Diagram altered the understanding of massive star evolution and confirmed the important role of mass loss in their subsequent evolution.

These most powerful stellar wind ejections are a key component to energy feedback into the interstellar medium and thus affect the star formation and evolution of the host galaxy.

For these reasons Professor Emerita Roberta Humphreys is awarded the RAS Herschel Medal.