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The coolest Classical Ae stars

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The coolest Classical Ae stars

The most massive stars in the sky are about 10-30 times the mass of the Sun. Some stars among this uniquely form a disk from their surface material, called Classical Be/Ae stars. They are known to exist for more than a century, yet there is no concise reason why they form such circumstellar disks. They also cease to exist after a specific temperature, and the cause is unclear. My research combines detailed atomic line modeling and comparison with high-resolution observations to probe this question. For the first time, we are mapping the temperature structure of the coolest Ae star disks. I compare the results by varying the central star characteristics. These disks are transient, and a detailed understanding of these structures provides valuable insights into the physics of disk formation. This is very useful for understanding other complex astrophysical objects like protoplanetary disks, planetary nebulae, and supernova remnants.