Charla invitada

Probing the structure and dynamics of B[e] supergiant stars' disks

Michaela Kraus

Astronomický ústav AV CR, Ondřejov, República Checa

Resumen:

B[e] supergiants are a group of evolved massive stars in a short-lived transition phase. During this phase, these objects eject large amounts of material, which accumulates in a circumstellar ring or disk-like structure, revolving around the star on Keplerian orbits. In most objects, the disks seem to be stable over many decades. This guarantees these disks as ideal chemical laboratories to study molecule formation and dust condensation.

Combining high-resolution optical and infrared spectroscopic data allows to search for emission features that trace the disk structure, kinematics, and chemical composition at different distances from the star. Certain forbidden emission lines of singly ionized or neutral metals, such as [CaII] and [OI], are ideal tracers for the innermost gaseous (atomic) regions. Farther out, molecules form. While first-overtone bands of carbon monoxide (CO) mark the hot, inner rim of the molecular disk, many more molecules are expected to form and to fill the space between the inner rim and the dust condensation zone.

Observing campaigns have been initiated to search for these molecules and their emission features, in order to construct a global picture of the structure and kinematics of the disks around B[e] supergiants. I will report on the progress of these campaigns and present first results.