and found that they are much larger than the numerical diffusion, especially for initially trans-Alfvénic clouds, ensuring that the detected magnetic flux removal is due to to the action of the RD rather than to numerical diffusivity.

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MODELING THE CIRCUMSTELLAR ENVIRONMENT OF AB AUR USING THE Hα LINE

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AB Aurigae is the brightest Ae Herbig star in the northern hemisphere and it shows evidence of accretion and ejection processes in its circumstellar region. Moreover the Hα line shows a P-Cygni type profile which is a common indication of wind. Its Hα line is very variable, and most of this variation occurs in its blue-shifted side. One of the processes that can be used to explain this variation is a disk wind similar to those of the classical T Tauri stars. AB Aurigae has been observed using spectral interferometry in the optical region, by the VEGA spectrometer in the CHARA-array, which can resolve details of milliseconds of arc in size: in the case of AB Aur represent sizes smaller than 1 AU. With this resolution, it's possible to observe the region where the wind is being ejected. Using a radiative transfer code that already had been used to model the Hα line profiles in classical T Tauri stars, and adapting it to model the Hα line in AB Aur, we calculate an intensity map showing the region where this line is being formed, and then we compare it with data from the interferometric observations. This work will give us a better understanding of the ejection and accretion mechanism that are responsible for the formation of the Hα line around AB Aur and in some of the Herbig Ae/Be stars, and whether a disk wind mechanism can explain or not this line in these objects.

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STEADY-STATE ACCRETION DISK MODELS WITH VARIABLE α

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We present solutions for the radial and vertical structure of standard accretion disks (Shakura & Sunyaev). In these disks, the accretion and distribution of the angular momentum are controlled by the viscosity parameter, α. Self-similarity solutions for accretion disks predict that α must be constant on the disk, if the viscosity can be described by a power law $\nu \propto R^{\gamma}$ with $\gamma = 1$. Recently, Isella et al. (2009) showed that for a sample of 14 young stellar objects, $-0.8 \leq \gamma \leq 0.8$, indicating that $\alpha = \alpha(R)$. Based on these evidences, we have computed the structure for 11 of these objects, using $\alpha(R)$ as prescribed by Isella et al. (2009). We compare our results with the solutions of the same disks for $\alpha = 10^{-3}$ to 10^{-1}, constant. Our results show that the disks (as expected) are lighter, cooler and thinner in its inner regions, when compared with the disks with α constant. We make a qualitative analysis of the solutions obtained with the JED + SAD models (Jet Emitting Disk + Standard Accretion Disk), which also predict the same behavior for the central part of the accretion disks. We show that the height scale maps the age of the objects: the disks become thinner overall to the extent as the objects become older. As the stars studied have different masses and accretion rates, the results appear to be independent of the specific characteristics of the disk+star system.

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THE SONYC SURVEY: TOWARDS A COMPLETE CENSUS OF BROWN DWARFS IN STAR FORMING REGIONS

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Deep surveys of star forming regions are the backbone of observational studies on the origin of stars and planets: On one side, they provide large and homogeneous object samples required to study disks,