$$P/A_V \propto A_V^{2\kappa - 1}$$

for isothermal clouds with $T_{gas} \neq T_{dust}$. Therefore, the decrease in P/A_V with increasing A_V indicates that the value of κ is below 1/2 in the core region.

Alternatively, the difference in temperature between gas and dust may be reduced in the core, or the grain growth might be followed by an increase of the population of spherical grains relative to nonspherical ones with increasing gas density.

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THE LYNDS 204 COMPLEX: MAGNETIC FIELD CONTROLLED EVOLUTION?

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The L204 dark cloud complex is a highly elongated structure stretching over 4 degrees in declination. Its total mass is 400 $M_\odot$ with the more tenuous sections of the cloud being displaced in right ascension from the more heavily obscured parts.

We have observed J = 1-0 and 2-1 ^{12}CO and ^{13}CO emission over the complex and have also made optical polarization measurements of background stars along the length of the cloud. The CO radial velocities exhibit gradients along the length of the complex which mimic the variations in the mass distribution, and the polarization $\vec{E}$ vectors suggest that L204 contains a magnetic field predominantly perpendicular to its long dimension (assuming that the Davis-Greenstein mechanism is operative). These observations suggest that some external impulse acted on the complex over a large angular extent and that the subsequent evolution of the cloud has been controlled to a considerable extent by a magnetic field in L204 to be ∿ 50 μm.

THE MAGNETIC FIELD STRUCTURE OF THE CMa R1 STAR FORMATION REGION

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The CMa R1 association is embedded in a curved region of dark and reflection nebulosity which is part of a larger-scale ring structure of emission nebulosity thought to be a relatively old supernova remnant (Herbst and Assousa 1977, 1978). These investigators and Herbst, Racine, and Warner (1978) have argued that recent star formation in CMa R1 was induced by the supernova. Indeed, data for the emission ring, an associated expanding H I shell, and a nearby runaway star infer an age for the supernova remnant of $3{\times}10^5$ years; consistent with the age of most of the CMa R1 stars.

Baierlein, Schwing, and Herbst (1981) and Baierlein (1983) have pointed out that a shock wave expanding from the supernova will amplify the interstellar magnetic field by compression. The resulting Parker-type hydromagnetic instability will produce gas clumps with linear extent 1-2 pc and spacing between clumps of several parsecs. The CMa R1 stars are distributed among several stellar subgroups along the curved dust cloud in just this fashion, providing further evidence for supernova-induced star formation.

If this scenario is correct, one would expect to find the compressed magnetic field at the leading edge of the shock front to be predominantly parallel to the shock front. In order to test this, we have carried out an extensive linear polarization survey of the CMa R1 region using the VATPOL polarimeter at the 61-inch and 90-inch telescopes of the University of Arizona and the 40-inch telescope of the U.S. Naval Observatory. Observations were obtained for 116 stars which appeared to sample the CMa R1 dark nebulosity and for 26 of the stars found to be associated with bright nebulosity by Herbst *et al.* (1982). We find that there is a clear tendency for stars on the western periphery of the association to have large polarizations which, in general, lie along the arc described by the dark dust lane in the south and emission nebulosity in the north. Stars more to the east, which are projected inside the ring, tend to have smaller polarizations primarily in directions nearly parallel with the galactic plane.