explained by the presence of larger silicate and graphite grains than is normally found in the interstellar medium. Correcting the stellar flux for foreground extinction results in a cloud extinction curve with an unusually small normalized extinction (less than 1.0) at 1500 Å. This may be due to multiple scattering effects.

40.18 A Search for High Density Gas in Broad-wing Molecular Sources. H. A. THROCKMURDO, U. Wyoming, and C. J. LADA, U. Arizona. We have obtained high signal-to-noise spectra of 98 GHz, J = 2-1 CS emission from 7 young objects that show broad, high-velocity "wings" in CO. The CS molecule is usually taken as a tracer of higher density gas in molecular clouds. It was used to search for a counterpart to the high-velocity CO structure that might have a greater density. Four objects -- Rho Oph, W3 IRS-5, Mon R2, and AFG 561 -- showed no apparent wings in CS. Three sources -- S140, Cep A, and AFG 90 -- all showed such structure. The full widths of the wings was in the range 15 - 20 km/s. This compares with the 0.1 A wings of 32 km/s in the CS line. In all cases the widths of the CS line wings was about half what is seen in CO, although in some cases this might have been due to higher noise in the observations of the former molecule than in those of the latter.

40.19 Evolution of Inhomogeneities in Molecular Clouds. D. GILDEA, J. SCALO, Univ. of Texas at Austin. We present a dynamical model of molecular clouds motivated by observations of clumpiness, super-thermal line widths, and lifetimes seemingly in excess of their collapse times. The model considers a molecular cloud to have a large fraction of its mass in the form of density inhomogeneities or clumps. Clump interaction with the ambient cloud material through plowing motions and with other clumps through collisions will generate shock waves of a few km/s. These interactions have been modeled using a two-dimensional hydrodynamics code and the line luminosities in the infra-red of H₂, CO, HD, CI, CII, and OI have been calculated. This line radiation may be detectable and could provide an observational test for turbulent cloud models. Basic data on drag coefficients for compressible clouds and the dynamics of plowing motions in compressible media are also presented.

41.01 An Improved Theoretical Solar Photospheric Model. R. L. KURUCZ, Center for Astrophysics. - As part of a project for computing model atmospheres for cool stars, Lucio Rossi of the Istituto Astrofisico Spaziale in Frascati and I have produced line lists for H₂, ¹⁷CH, ¹³CH, ¹⁵CH, ¹⁷OH, ¹³OH, ¹⁷NH, ¹⁷NH, ²⁸SiH, ¹³SiH, ³⁰SiH₂, ²⁴MgB, ²⁵MgB, ¹²¹⁶C, ¹²¹⁷C, ¹²¹⁸C, ¹²¹⁶N, ¹²¹⁷N, ¹²¹⁸N, ¹²¹⁶O, ¹²¹⁷O, ¹²¹⁸O, ²⁸Si, ²⁹Si, ³⁰Si, and we are continuing with TiO. Rodney Whitaker of Los Alamos National Laboratory and I have computed statistical distribution function opacities using these line data, the Kurucz and Peytremann atomic line list, the new Kurucz Fe II calculations, and various other atomic data. A radiative-convective equilibrium solar model computed with these opacities well reproduces the solar central intensity measurements of Labs and Neckel. The model is compared to empirical models to determine the onset of chromospheric heating below the temperature minimum. Grids of models show the effects in intensity and line-darkening to be expected from solar variability in convection or effective temperature.

41.02 The Compact Magnetograph: Preliminary Results. B. A. GILLESPIE, A. M. TITTLE, Lockheed Palo Alto Research Labs. A versatile compact magnetograph concept employing a solid Fabry-Perot etalon is demonstrated. One half of the etalon is 190 Å thicker than the other half, which produces sets of dual passbands .05 Å wide, separated by .1 Å which repeat every 1.4 Å. An all-deposited 1.3 Å blocking filter selects a single pair, one of which is in the red wing and the other in the blue wing of the magnetically sensitive Fe line of 6302.5 Å. Since both passbands are produced simultaneously, tilting