We study the effect of magnetic field on the thermal instability in the cooling region behind an interstellar shock ($v_s \simeq 10$km sec^{-1}). It is shown that small magnetic fields ($\beta=0.015$, where β is the ratio of preshock magnetic pressure to the ram pressure) completely prevent the thermal instability. The preshock density perturbation grows until the longarithmic slope of the cooling function $S \simeq 0.4$ and then decreases. Our results show that the sheet-like structure of ~ 0.03 pc is possible if the preshock density inhomogeneity is ~ 0.1 pc, although the density ratio is only 1 : 2.

Chromospheric Activity, Rotation Age on Lower Main Sequence Stars

Park, Young Deuk and Yun, Hong Sik
Department of Astronomy, Seoul National University

New empirical relations between stellar CaII emission and rotation or age are derived by analyzing Wilson's CaII flux measurements (1968, 1978) of lower main sequence stars and then correlating them with their age and rotation rate.

It is found that stellar chromospheric emission decays smoothly with age as a star slows down rotationally, establishing that both the emission level and rotation rate decrease with the square root of age.

Heating of Umbral Chromospheres by Slow-Mode Acoustic Shock Waves

Lee, Myung Gyoon and Yun, Hong Sik
Department of Astronomy, Seoul National University

Making use of the "full" acoustic shock theory, we have calculated the shock dissipation rates of slow-mode accoustic waves travelling through umbral chromospheres permeated by uniform, vertical magnetic field and compared the computed dissipation rates with the radiative cooling rates estimated by Avrett (1981).

We found that the lower umbral chromospheres may be heated by the slow-mode acoustic waves with the period of several tens second. Comments on the use of the weak shock theory under sunspot conditions will be made.

秋季 學術大會

일시：1984年 11月 3日
장소：全羅南道學生科學舘

An Analysis of Intermediate Population II Stars: I. Metallicity and Interstellar Reddening

Ann, Hong Bae
Department of Earth Science, Pusan National University