

[P02-3] **Effects of Parallel Density Gradient on Plasma Wave Coupling:
Application of 3-D Fluid Numerical Model**

김경섭, 김은화, 이동훈
경희대학교 우주과학과

In an inhomogeneous plasma, the plasma waves become complicated owing to the existence of local cutoff, coupling, and resonances. Since the plasma wave equations become coupled, it is often difficult to obtain the analytical solution. Approximations such as WKB and Bremmer series also become invalid near the local cutoff and discontinuities, and the singularities often give rise to complexity in interpreting the time-dependent solutions. We used a powerful technique of 3-D fluid numerical model, which is very useful in these kinds of coupled wave problems. It is examined how wave coupling occurs in a cold magnetized plasma, where inhomogeneity lies parallel to the ambient magnetic field, by analyzing time histories of both electric and magnetic field components. The results show that electromagnetic energy is transferred into electrostatic energy when the resonant condition at plasma resonances is satisfied.

[P03-1] **Photometric and Spectroscopic Observations
of the oEA-Type Variable AB Per**

Seung-Lee Kim, Chung-Uk Lee, Jae Woo Lee
Korea Astronomy and Space Science Institute

We present photometric and spectroscopic results for the Algol-type semi-detached eclipsing binary AB Per. The variable had been discovered to have a Delta Scuti-type pulsating component by our previous study (Kim et al. 2003, A&Ap, 405, 231). We have obtained several high-resolution echelle spectra with the BOAO 1.8m telescope. The spectra show strong emission at H α 6563Å, indicating that AB Per has circumstellar gases around the primary component. The primary and secondary components do not rotate fast enough to interpret short-periodic light variations as a rotation effect. In conclusion, the primary component of AB Per has the longest pulsating period of about 0.2 day among the oEA(oscillating EA)-type variables.