[포AE-01] Preliminary Result of Spectral Analysis Using Objective-Prism Plates

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We present the scanned digital images and their preliminary analysis results of objective-prism plates taken with the Michigan Curtis Schmidt telescope at Cerro Tololo Inter-American Observatory. In order to separate an individual spectrum of a star, it should be required to identify each field star in the plate. Using the PPM(Position and Proper Motion) catalog, we are verifying which star corresponds to the spectrum in a plate. In addition to this, we plan to devise the method for wavelength calibration in each spectrum. Finally we will make them for public use, not only for professional astronomers but also for high school and college students for encouraging them to be interested in the astronomy, especially astronomical spectroscopy and stellar astronomy.

[포AE-02] Numerical Simulations for Magnetohydrodynamics based on Upwind Schemes

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Many astrophysical phenomena involve processes of magnetohydrodynamics (MHD) and relativistic magnetohydrodynamics (RMHD). A number of numerical schemes have been developed to solve the equations of ideal MHD and RMHD. Recent codes are based on upwind schemes which solve hyperbolic systems of equations following the characteristics of the systems. Upwind schemes stand out by their robustness, clarity of the underlying physical model, and ability of achieving high resolution. We present MHD and RMHD codes based on the total variation diminishing (TVD) and weighted essentially non-oscillatory (WENO) schemes, which are second and higher order accurate extensions of upwind schemes. We demonstrate the ability and limitation of codes based on upwind schemes through a series of tests.