[구ST-07] A pseudo-potential in Kerr Geometry

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We present a simplistic approach to study the particle dynamics, fluid dynamics and numerical simulation of accretion flows around rotating black holes. We show that with a suitability modified effective potential (pseudo-Kerr potential) of the disk system around the central gravitating rotating object, one can carry out these studies very accurately. We present the effect of viscosity during accretion around a rotating black hole and find the solution topologies. We show that shock forms in the accretion disk and moves further away when the black hole rotation is increased. However, in a normalized sense, the flow parameters, for which shocks form around rotating black holes, produce shocks closer to the black hole with the increase of black hole's rotation. We also show that the shock oscillations with time give the higher QPO frequency observed from black hole systems. Viscosity of the flow reduces QPO frequency while spin of the black hole enhances QPO frequency.

[포ST-08] Abundances of Light Elements for Planet-Host Stars

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We obtained the spectra of Planet-Host Stars(PHSs) and normal field stars of the same spectral type(G-type) with BOES. We measured the equivalent width of Fe and some light elements lines using the automatic EW measurement program, TAME(Tools for Automatic Measurement of Equivalent-widths) and estimated the abundances by synth and abfind driver of MOOG code. Since the absence of planets in the normal field stars cannot be "completely" proved, this work focused on the PHSs which have the massive planets close to the parent star relatively, called as "Hot Jupiter". We carried out an investigation for the difference of abundances between stars with "Hot Jupiter" and normal field stars with no known planets. We examined the chemical composition of light elements such as C, S, O for the host stars with planets, especially "Hot Jupiter", to find some characteristic feature.