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It is less well known that the properties, especially the mass accretion rate, of accretion flow are affected by the angular momentum of accreting gas. Park (2009) found that the mass accretion rate \dot{m}, mass accretion rate in units of Bondi accretion rate, is inversely proportional to the angular momentum of gas λ, at the Bondi radius where gas sound speed is equal to the free-fall velocity and proportional to the viscosity parameter α, and also Narayan & Fabian (2011) found a similar relation, but the dependence of the mass accretion rate of the gas angular momentum is much weaker. In this work, we investigate the global solutions for the rotating Bondi flow, i.e., polytropic flow accreting via viscosity, for various accretion parameters and the dependence of the mass accretion rate on the physical characteristics of gas. We set the outer boundary at various radius r_{out}=10^3～10^5 r_{Sch}, where r_{Sch} is the Schwarzschild radius of the black hole. For a small Bondi radius, the mass accretion rate changes steeply, as the angular momentum changes, and for a large Bondi radius, the mass accretion rate changes gradually. When the accreting gas has a near or super Keplerian rotation, we confirm that the relation between the mass accretion rate and angular momentum is roughly independent of Bondi radius as shown in Park (2009). We find that \dot{m} is determined by the gas angular momentum at the Bondi radius in units of r_{Sch}c. We also investigate the solution for the rotating Bondi flow with the outflow. The outflow affects the determination of the mass accretion rate at the outer boundary. We find that the relation between the mass accretion and the gas angular momentum becomes shallower as the outflow strengthens.

[구 HT-05] Herschel/PACS spectroscopy of the supernova remnant G21.5-0.9

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We present Herschel Space Observatory far-IR observations of the supernova remnant(SNR) G21.5-0.9. We search PACS-IFU data for 63um [O I], 88um [O III], 157um [C II] emission lines and detect the [O II] and the [C II]. We then produce emission line maps to check the spatial distribution of the elements. We compare the maps to Radio, IR-photometrics, and X-ray images in order to understand interaction of the ejecta with the Pulsar Wind Nebula(PWN) and physical environment in the SNR.

[구 HT-06] X-RAY PROPERTIES OF THE PULSAR PSR J0205+6449 IN 3C 58

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We measure X-ray timing and spectral properties of the pulsar PSR J0205+6449. Pulsar's rotation frequency ν = 15.20102357(9) s^{-1} and its derivative $\dot{\nu}$ = -4.5(1) x 10^{-11} s^{-2} are measured, and the pulsed spectrum of 2-30 keV is model of power law with photon index Γ_{psr} = 1.07(16) and $F_{2\text{-}30\ keV}$ = 7.3(6) x 10^{-13} erg cm^{-2} s^{-1}. We use thermal emission models and non-thermal model to fit the pulsar spectrum and measure the surface temperature and luminosity of the pulsar. The surface temperature T_{∞} = 0.5-0.8 MK and luminosity L_{th} = 1-5 x 10^{32} erg s^{-1} are measure, and this result verifies the previous results known to have low surface temperature and luminosity for the age range of

고천문

[구 HT-07] Solar motion described in the Richan lizhi(日躔曆指) and the Richan biao(日躔表) of the Chongzhen reign treatises on Calendrical Astronomy(Chongzhen lishu 崇禎曆書)

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본 연구는 명말(明末)에 역법(歷法)의 개정을 주장한 서광계(徐光啓, 1562~1633)의 기획과 총괄에 의해 편찬되었고, 이탈리아 선교사 로(Giacomo Rho, 羅雅谷, 1593~1638)가 주 저자로 보는 《숭정역서》에서 태양의 이론편인 <일전역지(日躔歷指)>와 계산 절차 및 계산수치표가 종합된 <일전표(日躔表)>의 내용을 정리, 분석하였다.