model color curve of the $2M_{\odot}$ main sequence companion. These results allow us to at least rule out large stars like red giants as a companion star of the binary progenitor system of this supernova. B−R and V−R color do not show any significant signs of a red bump, which shows a thin helium shell ($M_{He}<0.1M_{\odot}$) for the sub-Mch WD (double detonation model). In addition, we estimated the distance to NGC 5353 as 37.098±0.028Mpc.

[포 GC-13] Understanding the connection between O32 and LyC escape based on numerical simulations

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Identifying the main source of reionization is one of the essential astrophysical problems that remain to be solved. But there are difficulties in directly measuring the Lyman continuum (LyC) escape fraction (fesc) from high-z galaxies, and other indirect methods have been suggested to identify potential LyC leakers. The O32 ratio ([OIII] λ5007 / [OII] λ3727) is one of those examples, which appear to positively correlate with fesc according to some observations and photoionization modelling of HII regions. However, recent studies fail to find such a correlation. Here we exploit a set of radiation-hydrodynamic simulations of giant molecular clouds to understand the physical connection between O32 and fesc. We post-process our simulations with the photo-ionization code Cloudy, and discuss the results obtained from the runs with different metallicities and input SEDs.

[포 GC-14] Giant Molecular Cloud Properties of WISDOM galaxies - NGC 5806 and NGC 6753

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Constraining the structure and thus the fate of giant molecular clouds (GMCs), the primary sites of star formation in galaxies, is crucial to understand the evolution of galaxies themselves. Exploiting the unprecedented sensitivity and angular resolution of the Atacama Large Millimeter/sub-millimeter Array (ALMA), we have measured the spatially-resolved (~ 20 pc resolution) properties of the GMCs in two nearby late-type galaxies, NGC 5806 (SAB(s)b) and NGC 6753 ((R)SA(r)b), as part of the WISDOM project. Although these results are preliminary, we identified ~ 200 resolved GMCs in NGC 5806 within a radius of 500 pc, most within a nuclear ring structure, and ~ 400 resolved GMCs in NGC 6753 within a radius of 2 kpc, most within a flocculent spiral structure. The GMCs of NGC 5806 have similar sizes but slightly higher linewidths than clouds in the Milky Way disc. Because the GMCs also have higher surface densities, the calculated cloud Virial parameters are nevertheless about unity, suggesting that the GMCs of NGC 5806 are in gravitational equilibrium and thus long lived. This is contrary to other WISDOM results on earlier-type galaxies, where large cloud linewidths are likely due to shear associated with the local (circular) orbital motions (rather than the clouds' self-gravity), and the clouds are either marginally or not gravitationally bound. These results support the notion that spheroids alter the dynamical states of clouds (morphological quenching), that are otherwise (i.e. in galaxy discs) fairly homogenous and similar to those of the Milky Way.

[포 GC-15] Evolution of the spin of late-type galaxies caused by galaxy-galaxy interactions

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We use N-body/hydrodynamic simulations to study the evolution of the spin of a Milky Way-like galaxy through interactions. We perform a controlled experiment of co-planner galaxy-galaxy encounters and study the evolution of disk spins of interacting galaxies. Specifically, we consider the cases where the late-type target galaxy encounters an equally massive companion galaxy, which has either a late or an early-type morphology, with the closest approach distance of about 50 kpc, in prograde or retrograde sense. By examining the time change of the circular velocity of the disk material of the target galaxy from each case, we find that the target galaxy tends to lose the spin through prograde collisions but hardly through retrograde collisions, regardless of the companion galaxy type. The decrease of the spin results mainly from the deflection of the orbit of the disk material by tidal disruption. It is found that the