

N25b Seimei KOOLS-IFU mapping of the gas and dust distributions in Galactic PNe:  
the case of NGC7027

大塚雅昭 (京大岡山天文台)

We investigate the physical and chemical properties of the gas and dust components in a well-studied carbon- and dust-rich planetary nebula (PN), NGC7027 using multiwavelength dataset. Using the optical Seimei/KOOLS-IFU 2-D emission-line maps with superior angular resolution, we successfully derive the 2-D maps of electron densities/temperatures, ionic/elemental abundances, and the dust and gas masses in a data-driven way without any assumptions. In the PSF matched 1-D spectra extracted from the UV *IUE* and the optical KOOLS-IFU, we detect over 200 gas emission lines, and derive their abundances of fourteen elements including *s*-process Kr with the same way. We construct a detailed photoionisation model to be consistent with all the observed quantities and theoretical AGB models' predictions. In this poster, we will present preliminary results of this PN and discuss future collaborative research. We demonstrate the capability of KOOLS-IFU and how the spatial variation of the gas and dust components in PNe derived from IFU observations can help understand the evolution of the circumstellar/interstellar medium.