

Comparison of the **extraplanar H α** and **UV emissions** in the halos of **nearby edge-on spiral galaxies**

1. Motivation

Poster #168

“What is the proportion of the origin of the extraplanar H α emission?”

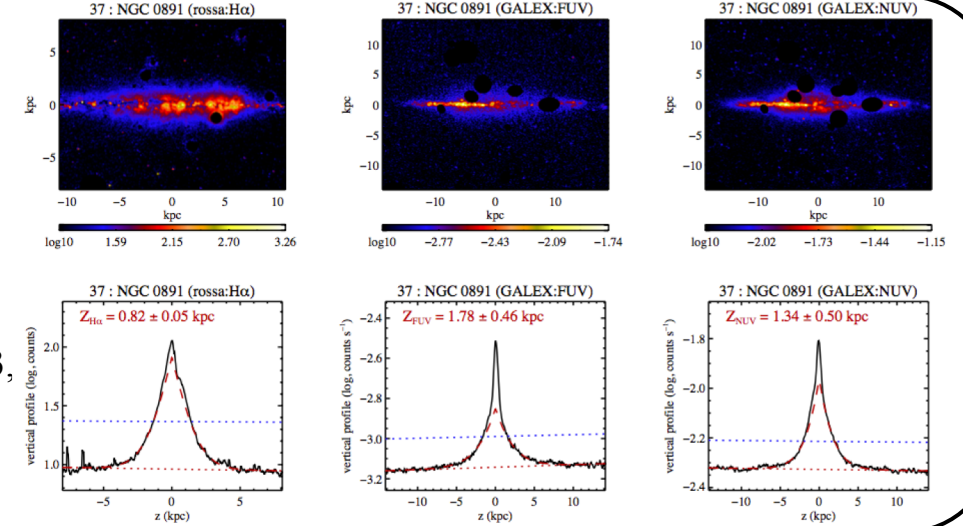
- Traditional belief: extraplanar diffuse ionized gas (eDIG)
- Additional possible source: H α photons scattered by extraplanar dust (eDust)

Problems with eDIG origin: The photoionization model is difficult to fully account for total extraplanar H α emission.

In this study, we'd like to show “the multiphase nature of the extraplanar ISM and the possibility of H α to be scattered by eDust”.

2. Target

38 nearby edge-on spiral galaxies observed from H α galaxy surveys (LVL, SINGS, SINGG, HaGS, Ha3, Rossa&Detmar)



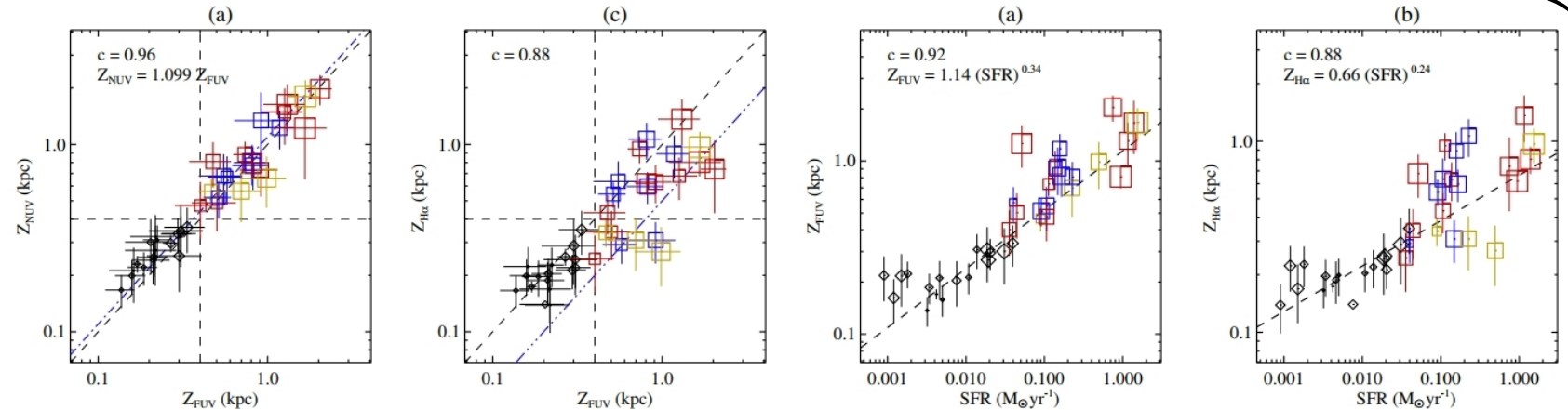
3. Result

(1) $Z_{H\alpha}$ is strongly correlated with Z_{FUV} .

- Multiphase nature of the ISM in galactic halo
- A substantial portion of extraplanar H α caused by dust scattering

(2) $Z_{H\alpha}$ and Z_{FUV} are correlated with SFR_{FIR} , D_{25} , and $\Sigma_{SFR,FIR}$.

- More tightly correlation to the SFR (stellar radiation and/or supernovae feedback)



Young-Soo Jo^{1,3}, Kwang-Il Seon^{1,2}, Jong-Ho Shinn¹, Yujin Yang¹, Dukhang Lee^{1,4}, Kyoung-wook Min³

¹Korea Astronomy and Space Science Institute (KASI),

²Astronomy and Space Science Major, Korea University of Science and Technology,

³Korea Advanced Institute of Science and Technology (KAIST),

⁴York University, 4700 Keele Street, Toronto, Ontario, M3J 1P3, Canada

