0.30±0.03 in IC 1613 and 0.14±0.01 in NGC 205. From analyses of the correlations of the spatial distribution of the C/M ratios with the HI properties and dynamical structures of the target galaxies, we discuss environmental effects of the star formation in the galaxies. We also discuss the epochs of the AGB star formation in the galaxies by comparing theoretical isochrones with the color distributions and luminosity functions of the AGB stars.

[Ⅶ-1-6] CO and HI Properties of the Virgo Cluster Spiral Galaxies

Eun Jung Chung[1,3], Myung-Hyun Rhee[2,3], Hyoryoung Kim[3], Aeree Chung[4], and Min S. Yun[5]
[1]*Department of Astronomy, Yonsei University, Korea*
[2]*Yonsei Observatory, Yonsei University, Korea*
[3]*Korea Atronomy & Space Science Institue, Korea*
[4]*Jansky Fellow at the National Radio Astronomy Observatory, USA*
[5]*Department of Astronomy, University of Massachusetts, USA*

We investigate the molecular and atomic gas properties of 20 Virgo cluster spiral galaxies by comparing with optical properties to assess the effect of the Virgo environment on the interstellar media of the Virgo disks. CO maps from FCRAO On-The-Fly (OTF) mapping survey and HI maps from VIVA (VLA Imaging of Virgo spirals in Atomic gas) are shown, and radial properties of molecular and atomic gas are compared. H2 deficiency along with HI is investigated, and gas evolution history of the Virgo cluster spirals is also examined.

[Ⅶ-1-7] The first UV fundamental plane and evidence of star formation in early-type galaxies

Hyunjin Jeong[1], Sukyoung Yi[1], Martin Bureau[2], and Roger L. Davies[2]
[1]*Department of Astronomy, Yonsei University, Korea*
[2]*Sub-Department of Astrophysics, University of Oxford, United Kingdom*

We present GALEX (Galaxy Evolution Explorer) far (FUV) and near (NUV) ultraviolet imaging of 34 nearby early-type galaxies from the SAURON representative sample of 48 E/S0 galaxies, all of which have ground-based optical imaging from the MDM Observatory. The surface brightness profiles of nine galaxies (~26 per cent) show regions with blue UV-optical colours suggesting recent star formation. Five of these (~15 per cent) show blue integrated UV-optical colours that set them aside in the NUV integrated colour-magnitude relation. These are objects with either exceptionally intense and localised NUV fluxes or blue UV-optical colours throughout. They also have other properties confirming they have had recent star formation, in particular Hbeta absorption higher than expected for a quiescent population and a higher CO detection rate. This suggests that residual star formation is more common in early-type galaxies than we are used to believe. NUV-blue galaxies are generally drawn from the lower stellar velocity dispersion (sigma_e <200 km/s) and thus lower dynamical mass part of the sample. We have also constructed the first UV Fundamental Planes and show that NUV blue galaxies bias the slopes and increase the scatters. If they are eliminated the fits get closer to expectations from the virial theorem. Although our analysis is based on a limited sample, it seems that a dominant fraction of the tilt and scatter of the UV Fundamental Planes is due to the presence of young stars in preferentially low-mass early-type galaxies.

■ Session : 태양 · 태양풍
10월 30일(금) 09:00 – 10:15 제2발표장

[(초)III-2-1] A Formula for Calculating Dst Injection Rate from Solar Wind Parameters

K. Marubashi[1], K.-H. Kim[2], K.-S. Cho[1], S.-L. Rho[1], and Y.-D. Park[1]
[1]*Solar and Space Weather Research Group, Korea Astronomy and Space Science Institute*
[2]*School of Space Research, Kyung Hee University*

This is an attempt to improve a formula to predict variations of geomagnetic storm indices (Dst) from solar wind parameters. A formula which is most widely accepted was given by Burton et al. (1975) over 30 years ago. Their formula is: $dDst^*/dt = Q(t) - Dst^*(t)/\tau$, where Q(t) is the Dst injection rate given by the convolution of dawn-to-dusk electric field generated by southward solar wind magnetic field and some response function. However, they did not clearly specify the response function. As a result, misunderstanding seems to be prevailing that the injection rate is proportional to the dawn-to-dusk electric field. In this study we tried to determine the response function by examining 12 intense geomagnetic storms with minimum Dst < -200 nT for which solar wind data are available. The method is as follows. First we assume the form of response function that is specified by several time constants, so that we can calculate the injection rate Q1(t) from the solar wind data. On the other hand, Burton et al. expression provide the observed injection rate $Q2(t) = dDst^*/dt + Dst^*(t)/\tau$. Thus, it is possible to determine the time constants of response function by a least-squares method to minimize