

Seminarium Szkoły Doktorskiej NCBJ

Thursday, 31 March, 9:00

<https://www.gotomeet.me/NCBJmeetings/phd-seminar>

Speaker:

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Title:

The FMR up to $z \sim 0.7$: investigating different methods

Abstract:

The studies of galaxy metallicity — as the outcome of the integrated star formation history and the evolution of the interstellar medium — can constrain the description of galaxy evolution. This subject has been widely studied in the local Universe, in particular using data from the Sloan Digital Sky Survey (SDSS). In this project, we develop such studies up to redshift $z \sim 0.7$ with the data from VIMOS Public Extragalactic Redshift Survey (VIPERS) and quantify its possible evolution with high statistical precision. We test different methods to study the Fundamental Metallicity Relation (FMR) and compare samples to review if they can lead to the same conclusions on the metallicity evolution between different samples, showing the pros/cons of each method and analogies/dissimilarities between them. We built two control samples by cross-matching all SDSS galaxies on physical properties (stellar mass and star formation rate) and galaxy type. We compare three different methods: i) the different projections of the FMR, ii) a non-parametric method, and iii) an "evolutionary" method. The biggest result of the control sample on physical properties is to show the same projection of the data at $z \sim 0.7$ in the metallicity vs SFR plane. Both the direct difference in metallicity — in each stellar mass-SFR bin between the local and intermediate redshift sample — and the non-parametric method show an increasing difference with increasing stellar mass, while the "evolutionary" method shows the samples diverging at lower stellar masses.