Z205a The Slit-Less Spectroscopic Survey of Galaxies (SPICY) with AKARI/IRC - perspective to SPICA

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Deep mid-infrared spectroscopy is a powerful tool to distinguish their dust obscured energy sources, the star-formation and the AGN activity, because of their prominent PAH emissions and bright hot dust continuum with deep silicate absorption. MIR spectroscopic surveys of selected samples were extensively done by Spitzer/IRS. Much deeper spectroscopic surveys in the MIR are proposed for SPICA. Here we report the result of the first unbiased spectroscopic survey in the mid-infrared wavelength, the slit-less SpectroscoPIC surveY of galaxies (SPICY). We conducted a low-resolution (R$\sim$50) slit-less spectroscopic survey at 513 μm of 9 μm flux-selected sources ($>$ 0.3 mJy) in 0.4 square degree area around the north ecliptic pole with the infrared camera (IRC) onboard AKARI. We identify 48 PAH-emitting galaxies with PAH 6.2, 7.7, and 8.6 μm features at z $<$ 0.5. The rest-frame SEDs of all PAH galaxies have a universal shape with stellar continuum and 7.7 μm bumps, except that the PAH enhancement significantly varies as a function of the PAH luminosities. The PAH luminosities shows good correlation with FIR luminosities obtained by Herschel photometry. We will present the result of the SPICY and perspective to the SPICA MIR spectroscopic survey including the figure of merit of slit/slit-less spectroscopy.