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X-ray emission from active nuclei hosted in galaxies in build-up

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It has been suggested that much of the formation of massive galaxies took place in the redshift range $z = 2-3$ where supermassive black holes were also growing in their centre. Rich gas reservoir in galaxies available in this period provides material for star formation, feeding of the black hole and, at the same time, obscure the nuclear regions. While extensive multi-wavelength study has been employed to understand this important galaxy building phase, X-ray observations provide powerful probe of the activity of black holes and their surroundings with less bias from extinction than in other wavelengths. An X-ray spectrum gives us information on the nuclear obscuration and the physical condition of the nuclear region through emission lines (Fe K emission in particular). Based on the wide-area and deep X-ray surveys in the COSMOS and CDF-S fields and the complete sample of nearby infrared luminous galaxies, evolution of the obscuration property and ionization condition of the nuclear regions in luminous active galaxies is discussed and a possible scenario to explain the evolution are examined.