



549th ASRC Seminar

Date: 15:00 ~ 15:30, 15 April

Location: Meeting room 103, ASRC Building

Speaker: Dr. Shuichi Wakimoto

(Quantum Beam Science Directorate, JAEA)

Title: Spin and charge excitations

in overdoped LSCO studied
by neutron and RIXS

Spin excitations in cuprate superconductors show "hour-glass" type dispersion. Recent soft x-ray RIXS at Cu-L3 edge using thin films of LSCO and Y123 family compounds revealed that the high energy part shows a dispersion relation similar to that of spin wave dispersion of non-doped LCO. Our neutron and Cu-L3 edge RIXS measurements using an identical single crystal of overdoped LSCO indicate that both techniques consistently indicate that the high energy dispersion is similar to that of LCO. These facts suggest that the magnetic excitation in LSCO may have layered structure where the high energy part is doping-independent and the low energy part is strongly doping dependent. The low energy part may relate to a fluctuating stripes. Attempts to detect fluctuating stripes directly by RIXS in both hard and soft x-ray regimes were unsuccessful so far. Future upgrades, however, of RIXS techniques may realize such measurements.



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