
Keywords: instrumentation, resonant scattering, DAFS.

Applications of resonant X-ray scattering is given in the hard X-ray regime, were it is shown that this technique is able to study directly and quantitatively charge ordering phenomena exemplified on the 1-d charge order of holes below the metal-insulator transition in Yb$_4$As$_3$. A second example shows that it is possible to obtain site-selective electronic information on valence states even from powder data in PrBa$_2$Cu$_3$O$_7$, which belongs to the high temperature superconducting family but does not superconduct. It is further shown that resonant scattering could be also very useful in the soft-x-ray regime and that it is possible to extract DAFS like of information from multilayers.