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Material sensitive grazing incidence small angle x-ray scattering MIHAEL CORIC, TU Muenchen, Munich School of Engineering, Germany, NITIN SAXENA, TU Muenchen, Physik-Department, LS Funktionelle Materialien, Germany, JAN WERNECKE, STEFANIE LANGNER, Physikalisch-Technische Bundesanstalt (PTB), Berlin, Germany, PETER MUELLER-BUSCHBAUM, TU Muenchen, Physik-Department, LS Funktionelle Materialien, Germany, MICHAEL KRUMREY, Physikalisch-Technische Bundesanstalt (PTB), Berlin, Germany, EVA M. HERZIG, TU Muenchen, Munich School of Engineering, Germany — We combine the structural analysis GISAXS (Grazing Incidence Small Angle X-ray Scattering) with the material sensitivity of spectroscopy. At resonant energy edges there is a drastic change in the absorption as well as in the dispersion behavior of the material containing the resonant atom. This causes variations in the scattering strength, generating sensitivity to the absorbing element. This approach has been successfully applied at the Carbon 1s absorption edge, an atom present in large amounts in every organic molecule.[1] We show an approach to exploit the weak changes in scattering strength due to a much lower concentration of atoms, e.g. sulfur, hence gaining material sensitivity in organic thin film materials. Using a model system, we are able to demonstrate that we can resolve the origin of scattering contrast in organic binary thin films using GISAXS measurements by varying the x-ray energy used during the experiment while at the same time obtaining information on structural length scales.

[1]Wang, C. et al.; **Nano Lett.** 2011, 11, (9), 3906-3911

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