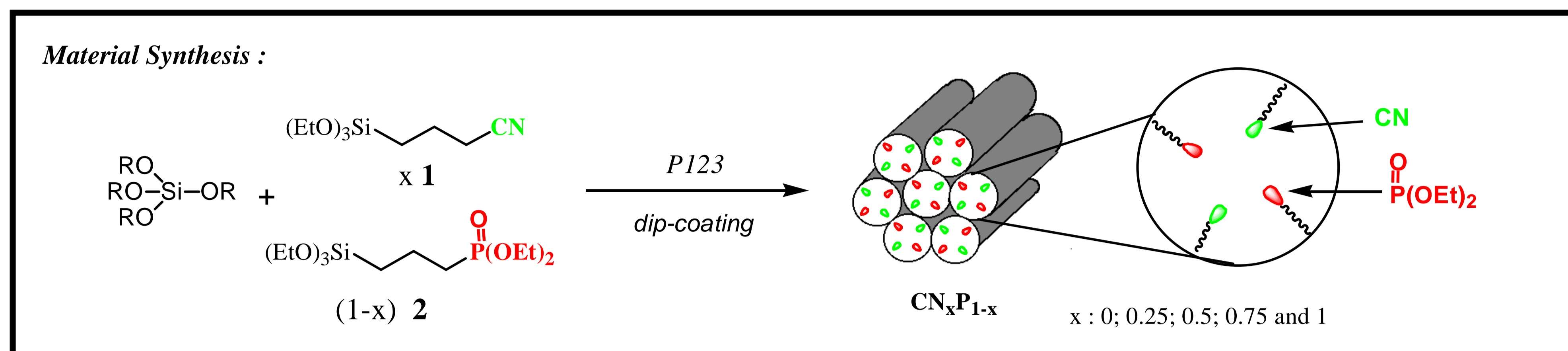


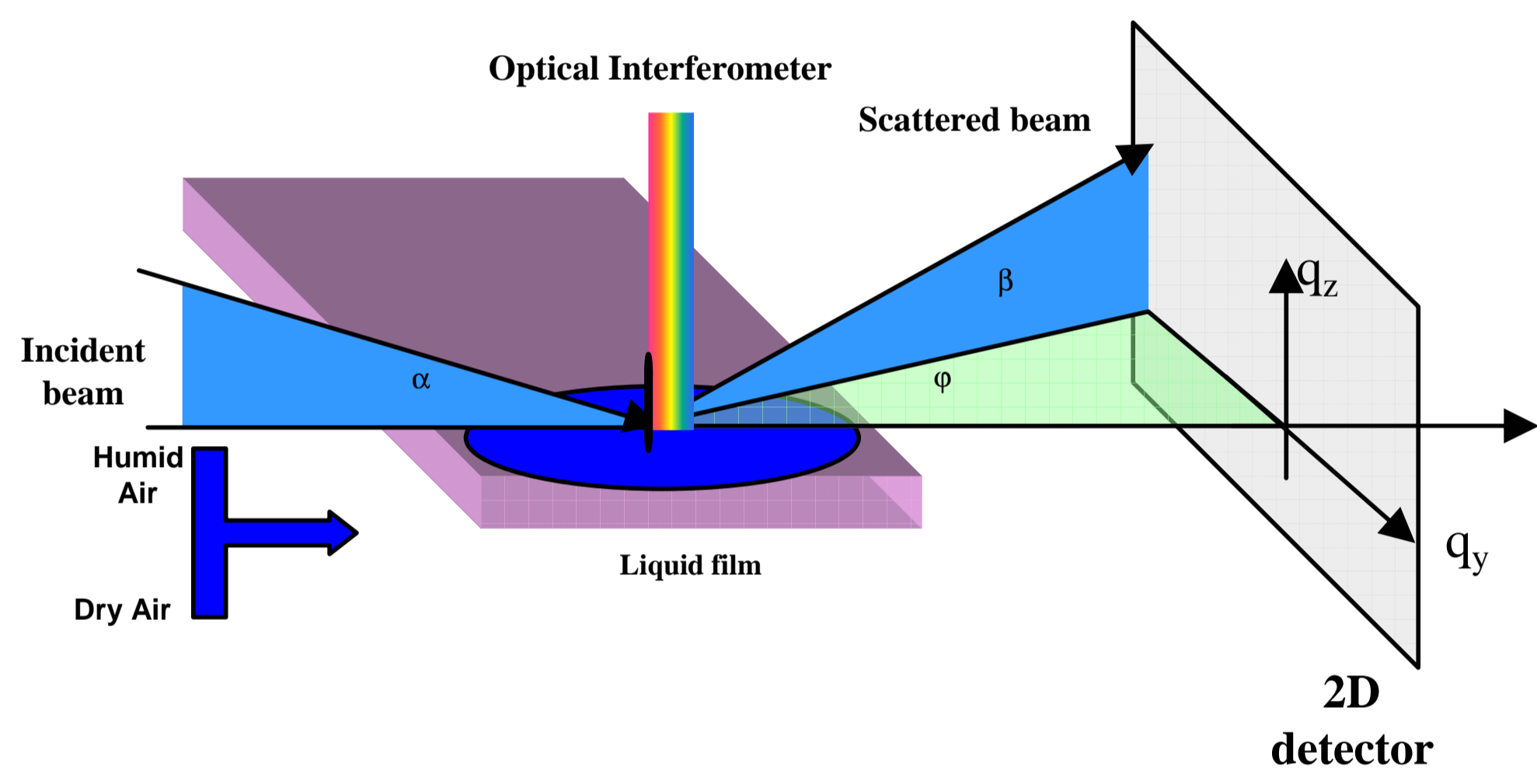
Motivation

Preparation and characterization of ordered silica thin films and their functionalization.

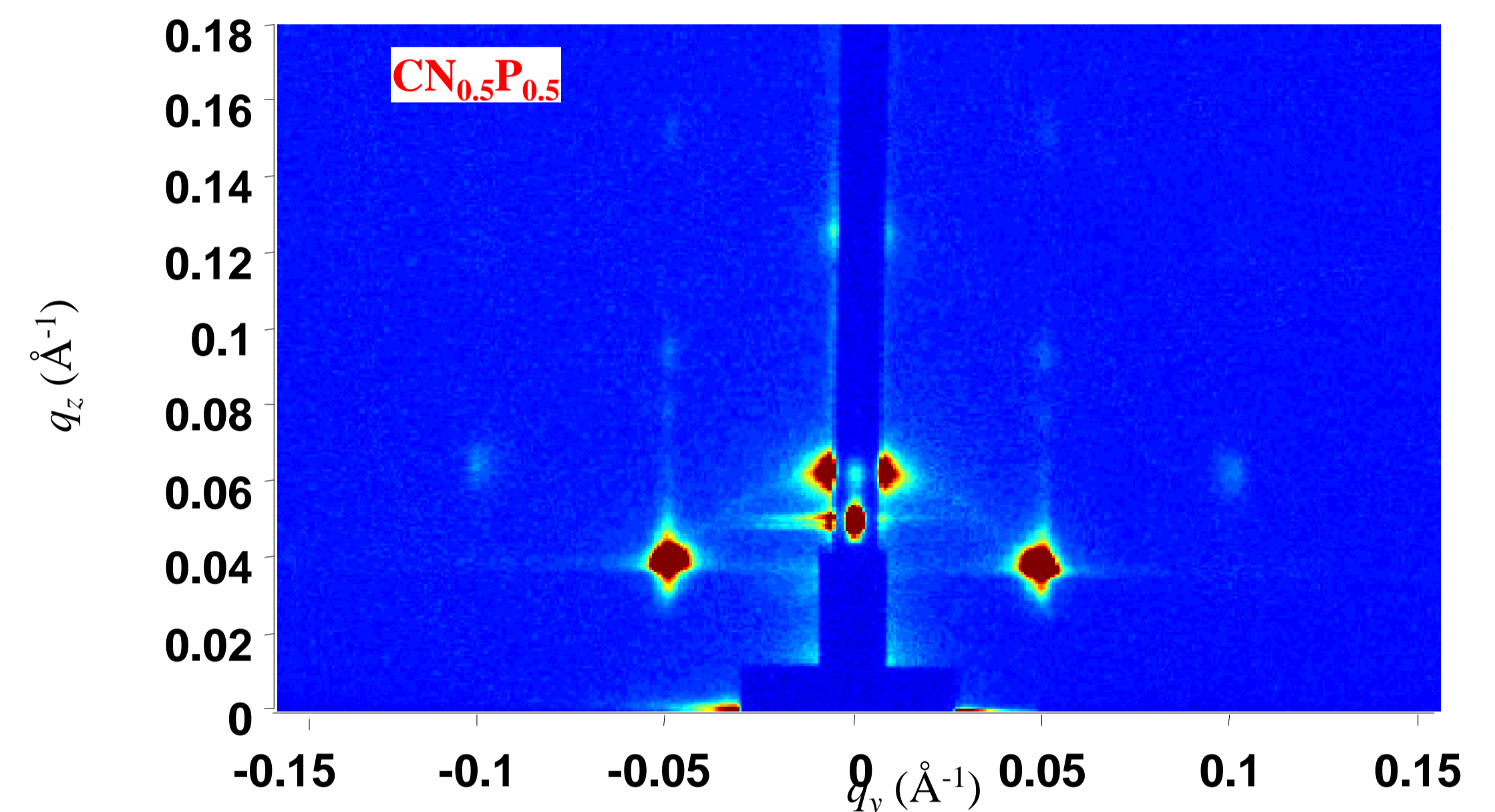


Optically transparent and highly ordered mesoporous organosilica thin films functionalized with two different organic groups in various proportions were synthesized by templated-directed co-condensation of tetraethylorthosilicate (TEOS) and a mixture of two distinct and functional organotriethoxysilanes $[\text{NC}(\text{CH}_2)_3\text{Si}(\text{OEt})_3$ 1 and $\text{O}=\text{P}(\text{OEt})_2(\text{CH}_2)_3\text{Si}(\text{OEt})_3$ 2. The mesostructured films obtained by evaporation induced self-assembly (EISA) approach were deposited on silicon substrates by dip-coating.

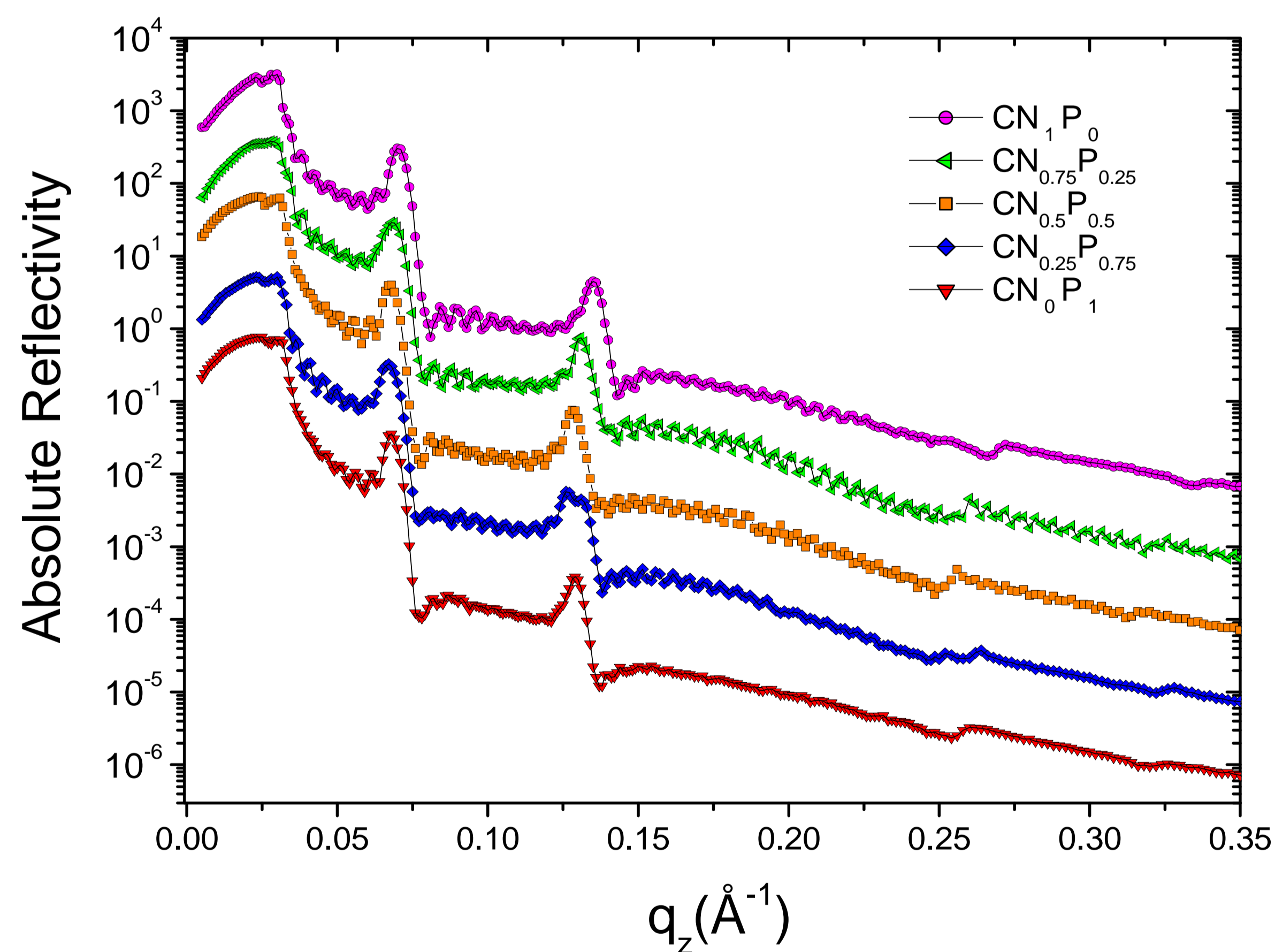
Schematics and Experimental Set-up of GISAXS



GISAXS pattern showing the 2 D hexagonal structure ($p6m$ space group) of the films for $x = 0.5$.



X-ray reflectivity curves of the films for $x = 0, 0.25, 0.5, 0.75$ and 1.



All the films exhibit Bragg reflections located at almost the same wave vector transfer. This clearly evidences that the presence of the two different organic groups does not influence much the structure of these materials.

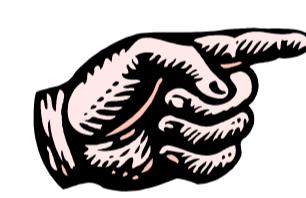
For more informations :

J. Mater. Chem. 14, 1854-1860 (2004).

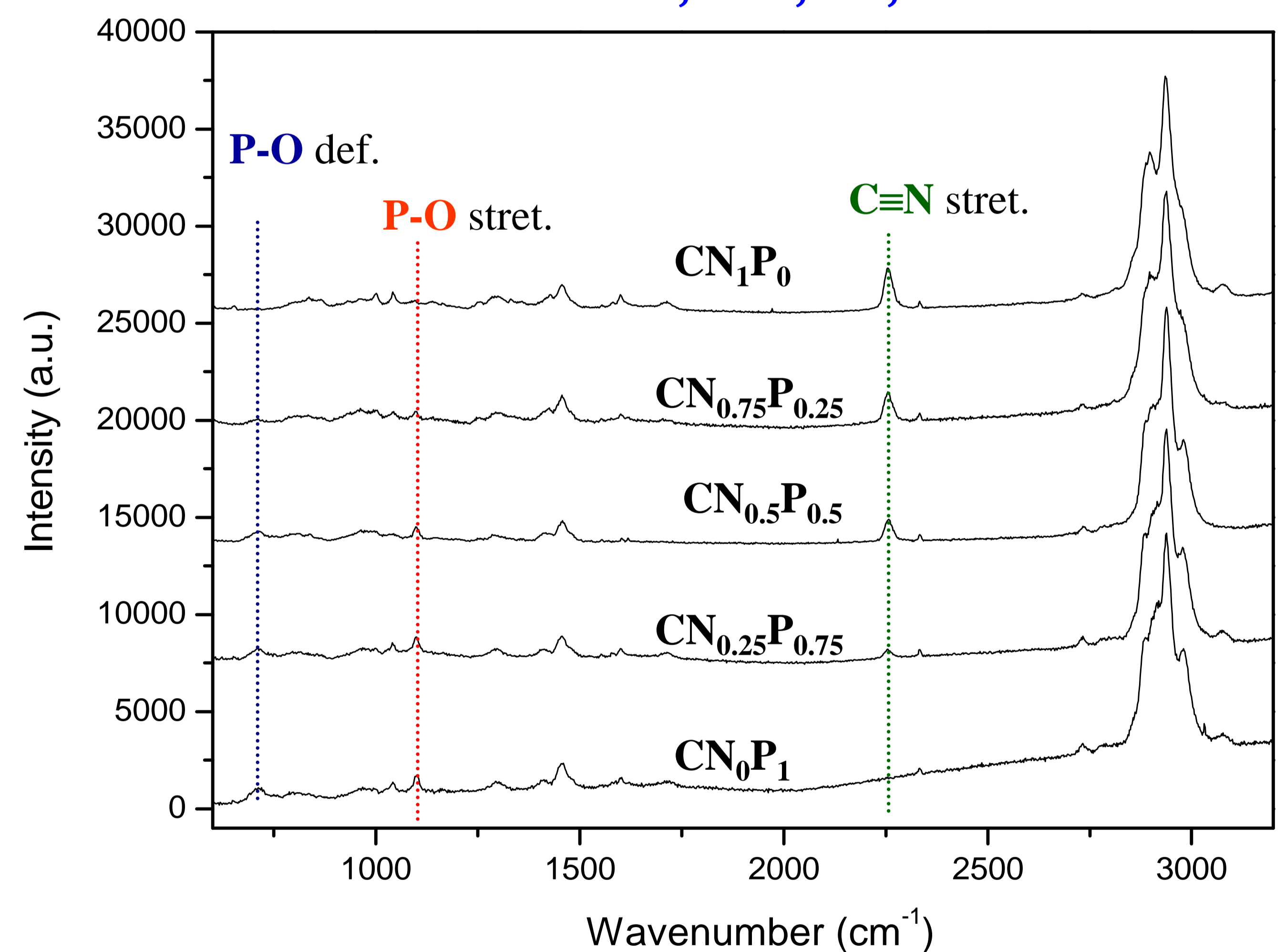
Physica B 357, 180-184 (2005).

Appl. Phys. Lett. 86, 113108/1-113108/3 (2005).

J. Nanosci. nanotechnol. 6, 377-381 (2006)



Micro-Raman spectra of the surfactant extracted films for $x = 0, 0.25, 0.5, 0.75$ and 1



The analysis of the integrated intensity of these bands clearly revealed their linear evolution as a function of organotriethoxysilanes concentration. Such an evolution is expected from the nominal concentrations of precursors introduced in the starting mixture.

Contact : Ahmad MEHDI ou Aain GIBAUD

Tél : 04 67 14 30 38. Mail : ahmad.mehdi@univ-montp2.fr ou alain.gibaud@univ-lemans.fr

site web : <http://www.umr5637.univ-montp2.fr/CMOS/extranet/recherche/MEHDI.php>

Montpellier

Robert Corriu, Ahmad Mehdi and Catherine Reyé

Le Mans

Jean-F. Bardeau, Sandrine Dourdain and Alain Gibaud