

Dynamical x-ray scattering of electronic liquid crystals

Supervisor: Jeroen Goedkoop

One tends to think of x-rays as the penetrating rays that allow superman to spot his troubled heroine deep in the villain's den (even if they are stopped by her petite dress). In the everyday science fiction world of experimental physics, x-ray eyes turn out even to "see" magnetic structure, in fact even with incredible detail thanks to the short wavelength of x-rays compared to visible light.

The objective of this proposal is to apply frontier x-ray scattering techniques that we have helped bring to fruition over the past decade to investigate the structure and dynamical properties of the electronic liquid crystal order in prototypical high T_c superconductors. The big question is to pin down whether fluctuating stripes - or spin, charge and/or orbital textures, in general - are lurking behind the unique richness of novel phases of matter seen in these doped Mott systems, or whether, as appears to be the case for static stripyness, they form a competing ground state.

For this project we require an active master student with an interest in nanoscale physics and magnetism willing to join us in synchrotron experiments at Bessy, Berlin and ESRF, Grenoble. 18 EC bachelor projects are negotiable.

For more information contact:

Jeroen Goedkoop, tel. 020 525 6362, j.b.goedkoop@uva.nl

www.science.uva.nl/

research/cmp/qem/content/researchprojects_main.html

