

**TITLE and type of activity (Networking, Joint Research development):
Join Research Development of new LARMOR Labeling experimental setups.**

Leading beneficiary: Delft University of Technology

Partners: LLB, FRM2, HZB, ESS, JCNS

Please do not forget evtl University partners!

Estimated budget (in person months, other direct cost) and tentative distribution per partner

Abstract of your innovative activity: *(please make sure that you mention the following points)*

1. State of the Art

Larmor labelling is nowadays widely used to increase the resolution of neutron scattering both in energy (neutron spin echo spectroscopy) and momentum transfer (Spin Echo SANS, Larmor diffraction). The advantage of these techniques is that they can reach high resolutions even with poorly monochromatized and collimated neutron beams. However, most existing instruments are relatively long, due to homogeneity requirements for the precession areas, which in fact collimates the beam and consequently dramatically reduces the neutron brilliance and data acquisition rates.

2. What is new? Why should it be done on a European consortium level (synergies)?

We propose to investigate the feasibility of new magnetic field configurations, based on triangular coils, which may lead to compact Spin Echo SANS and Larmor diffraction instruments combining flexibility with high brilliance and high performance.

3. How could your activity be connected with other methods and techniques (outside the neutrons community)?

This is a development of neutron scattering instrumentation without obvious connections to other methods and techniques.

4. Is there any link with national initiatives/projects (e.g. national data initiatives, but also European roadmaps etc)?

The instrumentation concepts at the ESS will benefit from these developments.

5. How is the user community involved in your activity? Benefit for the user (evtl for any specific science community?)

This involvement is not obvious at the present state, as this is more a technological development. However, this development will ultimately lead to

the realisation of experimental setups and tests with real samples. At that point the user community will be involved.