

**TITLE and type of activity (Networking, Joint Research development):**

**Neutron and Muon European Schools (NAMES)**

Leading beneficiary: ISIS/ILL

Partners: Université Joseph Fourier (ULF), Grenoble, INP Grenoble (INPG), University of Oxford (UO), Forschungszentrum Jülich (FZJ), Paul Scherrer Institute (PSI), Helmholtz Zentrum Berlin (HZB), Budapest Neutron Center (BNC), Helmholtz Zentrum Geesthacht (HZG)

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

(assuming 4-year period)

~500 M€ Direct Costs – support for student and trainer mobility and subsistence.  
8 PM (ISIS / ILL) Administration, evaluation, reporting and organization.

**Abstract of your innovative activity:**

**1. State of the Art**

High quality training for PhD students and post-docs in facilities based techniques such as neutron scattering and muon spectroscopy is a pre-requisite requirement for a healthy and dynamic user base. Under FP7, NMI2-II neutron and muon schools across Europe have been integrated under the umbrella of the Neutron and Muon European Schools (NAMES). This provides an opportunity for direct exchange of experience and good practice between individual schools, and provides a forum for effective assessment of their quality and performance.

NMI3-II provides publicity and dissemination infrastructure – which allows students and post-docs to make an informed choice of which are the most appropriate training opportunities for them. In addition, NMI-II provides financial support (for mobility and subsistence) to non-national students at these schools, and thus greatly enhances the international character of each individual school. For research based at central facilities it is very important to foster European and wider collaborations at an early stage, and interaction of students from a variety of backgrounds and neutron sources across Europe is a valuable opportunity to forge these collaborations and links.

Under NMI3-II, school directors meet, together with the members of the NMI3-II advisory committee (AC) once every two years to exchange information and feed into the schools evaluation process.

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

The success of the NAMES umbrella – as judged by the NMI3-II AC – hinges on the continued collaboration between school directors, informed basis for training

evaluation, and support for researcher to attend. The European neutron landscape is on the verge from 2020 onwards of a paradigm shift with the commencement of operation of the European Spallation Source. The success of this new international source, will depend to a large extent on the quality of the new researchers it attracts, and so provision of high quality training in the neutron community will become every more important. The international character of the ESS makes it even more important that training is viewed as a joined-up effort – ideally as a European consortium. In this way, we can ensure that the appropriate training is matched with the best and most suited trainees, without too much duplication of effort.

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

Clearly there is a major cross-over between neutron research and techniques, and those based on x-ray synchrotron sources (in addition to muons). Indeed a large fraction of the schools supported under the NAMES activity already include at least some training in synchrotron techniques. Given that the two multi-nationally supported neutron facilities in Europe (ILL and ESS) – and some of the nationally funded sources – share sites with x-ray synchrotron facilities, it is clear that much could be achieved by a more joined up approach to training.

There is a major push towards the provision of e-learning as a tool to be used in the provision of neutron scattering training. Clearly there, there will be a direct synergy between on-site practical training activities and classroom based tutorial and e-learning activities at the component schools in NAMES. We expect that initially, NAMES schools will feed material in to the e-learning infrastructure so that these materials can be effectively shared between the schools – and beyond.

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

The provision of high quality training in neutron and muon techniques forms a component part of the STFC strategy for world-class skills development. (likely to be the case for other national strategies)

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

The involvement of the user community is *key* to the success of neutron and muon training schools. While the central facilities can provide broad expertise in technical aspects, cutting edge science pushing the boundaries of the techniques is led by the user community, and therefore, user involvement in the training schools is fundamental to their success. In return, the health of the user community *depends* on the provision – and crucially the availability of high quality training. The high cost and value of neutron and muon beam time often means that students can't afford to be trained "on-the-job", but instead greatly

rely on directed training facilities, where they are given the opportunity to get their hands dirty and make mistakes.