experiments have been made since the reopening of the instrument. Amongst them, measurements on a rather small single crystal, i.e. of size compatible with three-axes instruments, within reasonable times has validated the expectations in terms of single crystal spectrometry. In this contribution we will review the design of the instrument as well as highlight some results obtained either during the commissioning period or during operation with regular users, including single crystal experiments.

G1.14

The Reflection of Very Cold Neutrons from Diamond Nanoparticle Powder and their Storage in a Nano-powder Trap. Valery V. Nesvizhevsky, Institut Laue-Langevin, Grenoble, France.

We predicted [1, 2] and observed [3] extremely intense scattering of very cold neutrons (VCN) from thin samples of diamond nanoparticle powder. The efficient VCN reflection is provided by multiple diffusive elastic scattering of VCN at single nanoparticles in powder. We show that this intense scattering would allow us to use nanoparticle powders very efficiently as the very first reflector for neutrons with velocities within a complete VCN range up to a few hundred m/s, thus bridging the energy gap between efficient reflectors for thermal and cold neutrons and the Fermi potential for ultracold neutrons. We have demonstrated storage of VCN in a trap with walls containing powder of diamond nanoparticles [4]. The storage times are sufficiently long for accumulating large density of neutrons with complete VCN energy range. Such nano-powders are particularly useful as reflectors for VCN and UCN sources, in analogy to standard reactor reflectors for faster neutrons. [1] V.V. Nesvizhevsky, Interaction of neutrons with nanoparticles, Phys. Atom. Nucl. 65 (2002) 400. [2] V.V. Nesvizhevsky, G. Pignol, and K.V. Protasov, Nanoparticles as a possible moderator for an ultracold neutron source, International Journal of Nanoscience 6 (2007) 485. [3] V.V. Nesvizhevsky, E.V. Lychagin, A.Yu. Muzychka, A.V. Strelkov, G. Pignol, K.V. Protasov, The reflection of very cold neutrons from diamond powder nanoparticles, NIM A 595 (2008) 631. [4] E.V. Lychagin, A.Yu. Muzychka, V.V. Nesvizhevsky, G. Pignol, K.V. Protasov, and A.V. Strelkov, Storage of very cold neutrons in a trap with nano-structured walls, submitted to Phys. Lett., nucl-ex/arXiv:0812.1635 [5] V.E. Efimov, G.V. Kolmakov, A.A. Levchenko, A.V. Lokhov, E.V. Lychagin, R.P. May, L.P. Mezhov-Deglin, V.V. Nesvizhevsky, G. Pignol, K.V. Protasov, and A.V. Strelkov, Coherent scattering of slow neutrons at nanoparticles as a tool for research and technology, to be published in NIM (2009). Proceedings of the International Workshop on Particle Physics with Slow Neutrons, Grenoble, France, 2008.

G1.15

Adapting a Triple-Axis Spectrometer for Small Angle Neutron Scattering Measurements. Mu-Ping Nieh[1], Zahra Yamani[1], Norbert Kucerka[1], Darcy Burgess[2], Hugo Breton[2] and John Katsaras[1]; [1]Canadian Neutron Beam Centre, National Research Council, Chalk River, Ontario, Canada; [2]Design and Fabrication Services, National Research Council, Ottawa, Ontario, Canada.

Small angle neutron scattering (SANS) instruments typically cover a q (scattering vector) range from 0.001 to 0.6 $\AA-1$. This range in q is achieved through a combination of cold neutrons (lambda > 4 Å) and a highly collimated beam. However, as a direct result of the unavailability of a cold source at the Canadian Neutron Beam Centre (CNBC), we have resorted to adapting a triple-axis spectrometer to perform SANS measurements. This is achieved through the use of multiple converging incident beams, which enhance the neutron flux on the sample by a factor of 20, compared to a single beam of same spot size. Smearing effects due to vertical divergence from the slit geometry are reduced through the use of horizontal Soller collimators. As a result, this modified triple-axis spectrometer enables SANS measurements to a minimum q value of ~ 0.006 $\AA-1$. Data obtained are in good agreement with those data from the 30 m NG3-SANS instrument located at the National Institute of Standards and Technology (Gaithersburg, MD, USA).

G1.16

The Reflectometer Super ADAM at the ILL. Max Wolff[1,2,3], Hartmut Zabel[2], Boris Toperverg[2], Kyrill Zhernenkov[2,3], Philipp Gutfreund[2,3], Andrew Wildes[3], Adrian Rennie[1] and Bjorgvin Hjorvarsson[1]; [1]Department of Material Science, Uppsala University, Uppsala, Sweden; [2]Chair for Solid State Physics/EP IV, Ruhr-University Bochum, Bochum, Germany; [3]Institut Laue-Langevin, Grenoble, France.

The angle dispersive neutron reflectometer ADAM at the ILL offers high flux combined with an excellent Q resolution and full polarization analysis. We will briefly present some results obtained during the last years: 1. Exchange bias: The asymmetry in the first and second magnetization reversal of CoO/Co bilayers has been related to nucleation or domain wall movement and magnetization rotation, respectively. 2. Domain walls: Banana shape off-specular scattering has been explained by a simple optical model including refraction at domain walls. 3. Quantum spin states of neutrons: From the intensity at the total reflection edges of a magnetic film the quantum spin state of neutrons inside magnetic samples has been proven. 4. Lateral structures: Correlated magnetic reversal in magnetic stripe arrays was resolved by specular and off-specular neutron reflectivity. 5. Crystallization of micelles: Preferred crystallization of micelles was found close to an attractive interface while crystallization is suppressed close to a repulsive interface. 6. Finite Magnets: Influence of the finite size of a multilayer system on effective exponents. To further improve the performance of the instrument and remain competitive with recently built reflectometers ADAM is presently reconstructed. The flux will be increased due to a new monochromator and optimised collimation. Optional neutron optic devices will push the limit with respect to the samples size aiming at 1x1 mm2 samples. For the polarization analysis contact free flippers and an efficient area polarizer and analyzer will be used. Magnetic fields up to 5 Tesla will be available at the sample position. We expect unique possibilities for the investigation of magnetic thin films due to the high flux (108 without collimation), the low background (9 orders of magnitude dynamic range) and excellent polarization analysis. A brief report on the status of the project will be given.

G1.17

Design and Simulation of Instruments for a Long-pulsed Spallation Source - ESS. Kim Lefmann[1,18], Peter K. Willendrup[2], Erik Knudsen[2], Finn Krebs-Larsen[3], Klaus Lieutenant[4], Klaus Habicht[5], Markus Strobl[5], Kaspar H. Kleno[1], Jorg Voigt[6], Henrich Frielinghaus[6], Sergey Manoshin[6,14], Jochen Stahn[7], Joachim Kohlbrecher[7], Uwe Filges[7], Emmanuel Farhi[8], Phil Bentley[8], Bob Cubitt[8], Albrecht Wiedenmann[8], Louis-Pierre Regnault[9,8], Alain Menelle[10], Arsen Goukassov[10], Juan Rodriguez-Carvajal[8], Gabriel Cuello[8], Matt G. Tucker[11], John R.P. Webster[11], Aaron Percival[12], Garrett Granroth[13], Lee Robertson[13], Tommy Nylander[15], Kell Mortensen[16], Christian Vettier[18] and Feri Mezei[17]; [1]Niels Bohr Inst., Univ. Copenhagen, Copenhagen ⊘, Denmark; [2]Risø National Laboratory, Technical University of Denmark, Lyngby, Denmark; [3]Institute of Chemistry, University of Århus, Århus, Denmark; [4]Institute for Energy Research, Kjeller, Norway; [5]Helmholtz Institute for Energy and Materials, Berlin, Germany; [6]Research Centre Jülich, Jülich, Germany; [7]Paul Scherrer Institut, Villigen, Switzerland; [8]Institue Laue-Langevin, Grenoble, France; [9]CEA, Grenoble, France; [10]Laboratory Laue-Brillouin, Saclay, France; [11]ISIS, Oxford, United Kingdom; [12]Physics Department, Queens University, Kingston, Ontario, Canada; [13]SNS, Oak Ridge, Tennessee; [14]JINR, Dubna, Russia; [15]Department of Chemistry, University of Lund, Lund, Sweden; [16]Faculty of Life Science, University of Copenhagen, Copenhagen, Denmark; [17]ESS-Hungary, Budapest, Hungary; [18]ESS-Scandinavia, Lund, Sweden.

The re-emergence of the European Spallation Source (ESS) on the political agenda calls for a re-consideration of the ESS instrument designs from the 2002/2003 reports [1]. In particular, this is necessary due to the decision that ESS will be a pure long-pulsed source. We will here present the first steps along this line. The contact between neutron instrument experts and neutron simulators has earlier proved very efficient in terms of promoting and testing new instrumentation ideas. For the specific problem of optimizing instruments for a long-pulsed spallation source, a fruitful meeting was held in Rencurel (close to Grenoble) in 2006 [2]. In October 2008, a similar workshop for instrumentalists and simulators was held at the island of Ven, in the Sound between Sweden and Denmark. The workshop had the specific task of designing six instruments for a long-pulsed ESS: A thermal spectrometer, thermal diffractometers for powder, single crystals and liquids/disordered materials, and cold instruments for SANS and reflectometry. We will here present the outcome of the Ven workshop and the simulated performance of the six instruments. In particular we have focused on the optimal instrument length and how the instruments would benefit from the long-pulsed structure, e.g. by use of wavelength multiplication schemes. We elaborate how these results together with findings from Rencurel [1] suggest designs for a large part of the ESS instrument suite. In addition, we will show how the lengths of the instruments could be used to create a tentative floor plan of ESS. [1] The ESS Project, Vol. I-IV, ed. D. Richter, Jülich (2002-2003) [2] H. Schober et al, Nucl. Instr. Meth. A 589, 34 (2008)

G1.18

Influence of Interfacial Roughness Correlation on Neutron Reflectivity from a Neutron Multilayer Mirror.
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Multilayer structures consisting of alternating Ni and Ti layers are widely used for neutron optical elements such as supermirrors. Good interface quality in terms of sharpness and smoothness plays a critical