

## Neutron Wall experiments 1998 – 2012

This document contains a list of the Neutron Wall experiments performed in the period 1998 – 2012. The other detector arrays used together with the Neutron Wall, and if known the length of the experiment, are listed in square brackets in the list of experiments.

- Gamma-ray spectrometers (germanium): EUROBALL and EXOGAM.
- Light charged particle detector arrays: ISIS, RoSiB, EUCLIDES and SiCD (silicon), DIAMANT is (CsI), CUP. (plastic scintillator)
- Neutron detector set-up: EDEN.

### LNL Legnaro, Sep 1998 – Oct 1998

1. J. Nyberg (Uppsala) et al. High spin studies of nuclei around doubly magic  $^{40}\text{Ca}$ . [EUROBALL, ISIS, ].
2. J. Eberth, S. Skoda (Cologne) et al. Investigation of prolate-oblate shape mixing in the  $N = Z + 1$  nucleus  $^{73}\text{Kr}$ : A precise measurement of transition probabilities. [[EUROBALL, ISIS].
3. D. Rudolph (Lund) et al. Spectroscopy of 2nd well proton emitters in the mass  $A \simeq 60$  region. [EUROBALL, ISIS].
4. S.M. Lenzi (Padova) et al. High-spin states in neutron deficient  $f_{7/2}$  nuclei. [EUROBALL, ISIS].
5. P.H. Regan (Surrey), R. Wadsworth (York) et al. Investigation of pairing correlations and collectivity in the  $N = Z$  nucleus  $^{80}\text{Zr}$ . [EUROBALL, ISIS].
6. C. Fahlander (Lund), L. O. Norlin (Stockholm) et al. Search for excited states in  $^{103}\text{Sn}$ . [EUROBALL, ISIS].
7. F. Dönau (Rossendorf) et al. Search for proton-neutron pairing in nuclei with mass number  $A \simeq 70$ . [EUROBALL, RoSiB].

### IReS Strasbourg, Jan 2001 - May 2001

1. Ö. Skeppstedt (Gothenburg) et al. Neutron Wall commissioning. Reaction:  $^{58}\text{Ni}$  (220 MeV) +  $^{56}\text{Fe}$ . [EUROBALL, EUCLIDES].
2. R. Wadsworth (York) et al. Study of band structure, alignments and pairing correlations in the  $N = Z$  nucleus  $^{76}\text{Sr}$ . [EUROBALL, EUCLIDES].
3. B. Cederwall (Stockholm) et al. Superdeformation, shell structure and neutron-proton correlations at  $A = 90$ ,  $N = Z$ . [EUROBALL, EUCLIDES].

4. C.D. O'Leary (Liverpool) et al.  $A = 46$  isobaric analogue states. [EUROBALL, EUCLIDES].
5. M.A. Bentley (Staffordshire) et al. Mirror symmetry and cross-conjugate symmetry in light  $f_{7/2}$  proton-rich nuclei. [EUROBALL, EUCLIDES].
6. M. Weiszflog (Uppsala) et al. Excitations and  $E2$  polarizations of the  $^{100}\text{Sn}$  core studied through the excited states of  $^{97}\text{Ag}$ . [EUROBALL, EUCLIDES].
7. S.M. Lenzi (Padova) et al. High spin structure, exotic shapes and isospin symmetry in  $sd$ -shell nuclei near  $^{32}\text{S}$ . [EUROBALL, EUCLIDES].
8. J. Eberth (Cologne) et al. Study of the oblate deformed  $g_{9/2}$  band in the  $N = Z + 1$  nucleus  $^{69}\text{Se}$ : Absence of blocking effect in odd-odd  $N = Z$  nuclei. [EUROBALL, EUCLIDES].
9. G. de Angelis (Legnaro) et al. Search for an experimental signature of the  $pn$  correlations. [EUROBALL, EUCLIDES].
10. M. Gorska (GSI Darmstadt) et al. Prompt and delayed spectroscopy in  $^{98}\text{Cd}$ . [EUROBALL, EUCLIDES, ISOMER TAGGING].
11. J. Nyberg (Uppsala) et al. Excited states above the  $6^+$  isomer in  $^{102}\text{Sn}$ . [EUROBALL, EUCLIDES, ISOMER TAGGING].

### **IReS Strasbourg, Feb 2003 - May 2003**

1. C. Ur (Padova) et al. Competing  $T = 1$  and  $T = 0$  pairing correlations in the odd-odd  $N = Z$  nucleus  $^{78}\text{Y}$ . [EUROBALL, EUCLIDES].
2. A. Gadea (Legnaro) et al. In beam spectroscopy of the  $T_Z = -1$  nucleus  $^{54}\text{Ni}$ . [EUROBALL, EUCLIDES].
3. B. Cederwall (Stockholm) et al. Search for a new coupling scheme in  $^{96}\text{Cd}$ . [EUROBALL, EUCLIDES].
4. M. Palacz (Warsaw), J. Nyberg (Uppsala) et al. Direct measurement of proton neutron matrix element with respect to  $^{100}\text{Sn}$  by studying excited states in  $^{100}\text{In}$ . [EUROBALL, CUP].

### **GANIL Caen, Sep 2005 - Dec 2005**

1. N. Alahari (GANIL) et al. Complete reaction studies with Borromean nuclei near the Coulomb barrier. [EXOAM, SiCD, 136 hours]. Radioactive ion beam experiment.
2. S. Williams (Surrey) et al. High-spin states in the  $T_Z = -3/2$  nucleus  $^{37}\text{Ca}$  – mirror symmetry at the largest values of isospin. [EXOAM, DIAMANT, 240 hours]. Radioactive ion beam experiment which was changed to a stable ion beam experiment due to too low beam intensity.

3. A. Gadea (LNL Legnaro) et al. Mirror energy differences in the  $A = 58$ ,  $T = 1$  mass triplet and charge symmetry breaking terms in the nuclear effective interaction above  $^{56}\text{Ni}$ . [EXOGRAM, DIAMANT, 144 hours].
4. B. Cederwall (Stockholm), R. Wadsworth (York) et al. Search for  $T = 0$  pairing and a new coupling scheme in  $^{92}\text{Pd}$  and  $^{88}\text{Ru}$ . [EXOGRAM, DIAMANT, 336 hours].

### GANIL Caen, May 2006 - July 2006

1. G. de Angelis (LNL Legnaro) et al. Electromagnetic decay properties of the  $T_z = 1/2$   $A = 67$  mirror pair: Isospin symmetry from  $E1$  amplitudes. [EXOGRAM, DIAMANT, 144 hours].
2. M. Palacz (Warsaw), J. Nyberg (Uppsala) et al. Single-particle energies and proton-shell gap in  $^{100}\text{Sn}$  extracted from high-spin states in  $^{103}\text{Sn}$ . [EXOGRAM, DIAMANT, 144 hours].
3. J-A. Scarpaci (IPN Orsay) et al. Neutron correlation in  $^6\text{He}$  studied through its nuclear breakup. [EDEN, Si det, 192 hours]. Radioactive ion beam experiment.

### GANIL Caen, Sep 2009 - October 2009

1. A. Gadea (LNL Legnaro) et al. Mirror energy differences in the  $A = 58$ ,  $T = 1$  mass triplet and charge symmetry breaking terms in the nuclear effective interaction above  $^{56}\text{Ni}$ . [EXOGRAM, DIAMANT, 144 hours].
2. B. Cederwall (Stockholm), R. Wadsworth (York), G. de France (GANIL) et al. Search for  $T = 0$  pairing and a new coupling scheme in  $^{92}\text{Pd}$  and  $^{96}\text{Cd}$ . [EXOGRAM, DIAMANT, 336 hours].

### GANIL Caen, June 2012 - July 2012

1. S. Lenzi (Padova) et al. Isospin symmetry breaking in analog rotational bands:  $^{23}\text{Mg}$  and  $^{23}\text{Na}$  [EXOGRAM, DIAMANT, 120 hours].
2. B. Cederwall (KTH Stockholm), R. Wadsworth (York), G. de France (GANIL) et al. Search for isoscalar spin-aligned coupling scheme in  $^{96}\text{Cd}$ . [EXOGRAM, DIAMANT, 336 hours]. This experiment failed due to problems with the accelerator.