

## List of publications of ESNT from 2004 to 2016

*Publications based on works performed by physicists in the framework of the ESNT projects during their stays as visitors at CEA (in bold the one(s) directly involved as a long-stay visitor or post-doc at ESNT). These publications include directly a reference to the ESNT framework and an acknowledgement for the support.*

### Liste des publications

(comportant une référence à l'ESNT, **ex** : *acknowledgements* ou *affiliation SPhN du post-doc* (fiche actualisée sur le site Web <http://esnt.cea.fr/index.php?id=10&ref=1>)

#### 2016

- ◆ *Radii and binding energies in oxygen isotopes: a challenge for the nuclear forces.*  
V. Lapoux, V. Somà, C. Barbieri, H. Hergert, J. D. Holt, R. Stroberg,  
Phys. Rev. Lett. **117**, 052501(2016).  
*Works initiated during the ESNT workshop in April 2014, "Radioactive ion beam experiments and three-nucleon forces".*
  
- ◆ *On the possibility of generating a 4-neutron resonance with a  $T=3/2$  isospin 3-neutron force,*  
J. Carbonell, E. Hiyama, R. Lazauskas, M. Kamimura, Phys. Rev. C **93**, 044004 (2016)  
*Works done partly during the ESNT workshop in October 2015, "Computation of three- and four-neutron resonances".*
  
- ◆ *The impact of low-energy nuclear excitations on neutrino-nucleus scattering at MiniBooNE and T2K kinematics,*  
V. Pandey, N. Jachowicz, **M. Martini**, R. González-Jiménez, J. Ryckebusch, T. Van Cuyck and N. Van Dessel, *arXiv:1607.01216 [nucl-th]*, Phys. Rev. C **94**, 054609 (2016).
  
- ◆ *Low-energy modification of the  $\gamma$  strength function of the odd-even nucleus  $^{115}\text{In}$ ,*  
M. Versteegen, D. Denis-Petit, V. Méot, Th. Bonnet, M. Comet, F. Gobet, F. Hannachi, M. Tarisien, P. Morel, **M. Martini**, and S. Péru, Phys. Rev. C **94**, 044325 (2016).
  
- ◆ *Gogny-Hartree-Fock-Bogolyubov plus quasiparticle random-phase approximation predictions of the  $M1$  strength function and its impact on radiative neutron capture cross section,*  
S. Goriely, S. Hilaire, S. Péru, **M. Martini**, I. Deloncle and F. Lechaftois,  
Phys. Rev. C **94**, 044306 (2016).
  
- ◆ *Influence of short-range correlations in neutrino-nucleus scattering,*  
T. Van Cuyck, N. Jachowicz, R. González-Jiménez, **M. Martini**, V. Pandey, J. Ryckebusch and N. Van Dessel, Phys. Rev. C **94**, 024611 (2016).
  
- ◆ *Nuclear response functions with finite range Gogny force: tensor terms and instabilities,*  
A. De Pace and **M. Martini**, Phys. Rev. C **94**, 024342 (2016).
  
- ◆ *Electron-neutrino scattering off nuclei from two different theoretical perspectives,*  
**M. Martini**, N. Jachowicz, M. Ericson, V. Pandey, T. Van Cuyck and N. Van Dessel,  
Phys. Rev. C **94**, 015501(2016).

◆ *Large-scale deformed quasiparticle random-phase approximation calculations of the  $\gamma$ -ray strength function using the Gogny force,*  
**M. Martini**, S. Péru, S. Hilaire, S. Goriely and F. Lechaftois, Phys. Rev. C **94**, 014304 (2016).

◆ *Assessing the role of nuclear effects in the interpretation of the MiniBooNE low-energy anomaly,*  
M. Ericson, M. V. Garzelli, C. Giunti and **M. Martini**, Phys. Rev. D **93**, 073008 (2016).

*Article in preparation, in collaboration with experimentalists from the SPhN LENA group.*

◆ *Are There Signatures of Harmonic Oscillator Shell Gaps Far From Stability?*

*–First Spectroscopy of  $^{110}\text{Zr}$ ,*

N. Paul, A. Corsi, A. Obertelli, P. Doornenbal, G. Authelet, H. Baba, **B. Bally**, M. Bender, D. Calvet, F. Château, S. Chen, J.-P. Delaroche, A. Delbart, J.-M. Gheller, A. Giganon, A. Gillibert, M. Girod, P.H. Heenen, V. Lapoux, J. Libert, T. Motobayashi, M. Niikura, T. Otsuka, T.R. Rodríguez, J.-Y. Roussé, H. Sakurai, C. Santamaria, N. Shimizu, D. Steppenbeck, R. Taniuchi, T. Togashi, Y. Tsunoda,

T. Uesaka, *et al.*, *In preparation, to be submitted to Physical Review Letters.*

*Articles in preparation or submitted end of 2016*

◆ *Emission of neutron-proton and proton-proton pairs in electron scattering induced by meson-exchange currents,* I. Ruiz Simo, J.E. Amaro, M.B. Barbaro, A. De Pace, J.A. Caballero, G.D. Megias, T.W. Donnelly, *arXiv:1606.06480v1 [nucl-th]* 21 Jun 2016

*Work discussions of the authors during the ESNT workshop held in 18-22 April 2016: “Two-body current contributions in neutrino-nucleus scattering”. (acknowledgements for the ESNT support)*

◆ *QRPA and Spin-flip mode in magnetic dipole excitation,* I. Deloncle, S.Péru, **M. Martini**, *submitted to EPJA in July 2016.*

◆ *E1 and M1 strength functions from Average Resonance Capture data,*  
J. Kopecky, S. Goriely, S. Péru, S. Hilaire, **M. Martini**, *submitted to Phys. Rev. C 22 September 2016.*

◆ *Neutrino-nucleus cross sections and oscillation experiments,*  
T. Katori, **M. Martini**, *Review article, with invitation of Journal of Physics G: Nuclear and Particle Physics, submitted 24 October 2016.*

## 2015

◆ *Nonobservable nature of the nuclear shell structure: Meaning, illustrations, and consequences,*  
T. Duguet, H. Hergert, J. D. Holt, and V. Somà, Phys. Rev. C **92**, 034313 (2015).

◆ *Ab initio Bogoliubov coupled cluster theory for open-shell nuclei,*  
**A. Signoracci**, T. Duguet, G. Hagen, and G. R. Jansen, Phys. Rev. C **91**, 064320 (2015).

◆ *Weakly bound Borromean structures of the exotic  $^{6,8}\text{He}$  nuclei through direct reactions on proton,* V. Lapoux and N. Alamanos, Eur. Phys. J. A. **51**, 91 (2015).

## 2014

- ◆ *Quasiparticle coupled cluster theory for pairing interactions*,  
T. M. Henderson, G. E. Scuseria, J. Dukelsky, **A. Signoracci**, and T. Duguet,  
Phys. Rev. C **89**, 054305 (2014).
- ◆ *Density functional theory with spatial-symmetry breaking and configuration mixing*,  
**T. Lesinski**, Phys. Rev. C **89**, 044305 (2014).
- ◆ *Ab initio self-consistent Gorkov-Green's function calculations of semi-magic nuclei: Numerical implementation at second order with a two-nucleon interaction*,  
V. Somà, C. Barbieri, and T. Duguet, Phys. Rev. C **89**, 024323 (2014).
- ◆ **A. Signoracci** and T. Duguet, *Evaluation of errors for ESPE in neutron-rich oxygen isotopes*,  
in preparation.
- ◆ **G.Potel**, A. Idini, F. Barranco, E. Vigezzi, R. A. Broglia, Pairing interaction and two-nucleon transfer reactions, arxiv nucl-th: 1404.1317 (2014) (NB: *affiliation SPhN*).

## 2013

- ◆ *Ab-initio Gorkov-Green's function calculations of open-shell nuclei*,  
**V. Somà**, C. Barbieri, T. Duguet, Phys. Rev. C **87**, 011303(R) (2013).
- In collaboration with experimentalists: F. Flavigny, ..., **A. Signoracci**, et al., Limited Asymmetry Dependence of Correlations from Single Nucleon Transfer*, Phys. Rev. Lett. **110**, 122503 (2013).

## 2012

- ◆ *Ab-initio take on effective single-particle energies in doubly closed shell nuclei*,  
T. Duguet and **G. Hagen**, Phys. Rev. C **85**, 034330 (2012).
- ◆ *Self-consistent Gorkov Green's function calculations of one-nucleon spectral properties*,  
**V. Somà**, T. Duguet, C. Barbieri, J. Phys. Conf. Ser. **337** (2012) 012001.
- ◆ *Self-consistent Green's functions calculation of the nucleon mean-free path*,  
A. Rios, **V. Somà**, Phys. Rev. Lett. **108**, 012501 (2012).

## 2011

- ◆ *Neutrinoless double beta decay studied with configuration mixing methods*,  
**T.R. Rodríguez**, G. Martinez-Pinedo, Progress in Particle and Nuclear Physics **66**, 436 (2011).

◆ *Gorkov self-consistent Green's function calculations of semi-magic nuclei*,  
**V. Somà**, T. Duguet, C. Barbieri, J. Phys. Conf. Ser. **321** (2011) 012039.

◆ *Ab-initio self-consistent Gorkov-Green's function calculations of semi-magic nuclei*,  
I. Formalism at second order with a two-nucleon interaction,  
**V. Somà**, T. Duguet, C. Barbieri, Phys. Rev. C **84**, 064317 (2011).

## 2010

◆ *Isospin mixing and the continuum coupling in weakly bound nuclei* ,  
**N. Michel**, W. Nazarewicz, and M. Płoszajczak, Phys. Rev. C **82**, 044315 (2010).

◆ *Energy Density Functional Study of Nuclear Matrix Elements for Neutrinoless  $\beta\beta$  Decay*,  
**Tomas R. Rodriguez** and Gabriel Martinez-Pinedo, Phys. Rev. Lett. **105**, 252503 (2010).

## 2009

◆ *Particle-number restoration within the energy density functional formalism*  
**M. Bender**, T. Duguet, D. Lacroix Phys. Rev. C **79**, 044319 (2009)

◆ *Non-empirical pairing energy functional in nuclear matter and finite nuclei*  
K. Hebeler, T. Duguet, T. Lesinski..., submitted to PRC ; arXiv:0904.3152.

◆ *An "archaeological" quest for galactic supernova neutrinos*, **R. Lazauskas**, C. Lunardini and C. Volpe, Journ. Cosmol. And Astro. Physics **04** (2009) 029.

◆ *Up-to N3LO heavy-baryon chiral perturbation theory calculation for the M1 properties of three-nucleon systems*,  
Y-Ho Song, **R. Lazauskas**, and T-S Park, Phys. Rev. C **79**, 064002 (2009).

◆ *Critical temperature for  $\alpha$ -particle condensation within a momentum-projected mean-field approach*, T. Sogo, **R. Lazauskas**, G. Röpke, and P. Schuck, Phys. Rev. C **79**, 051301 (2009).

◆ *Density matrix renormalization group approach to two-fluid open many-fermion systems*  
J. Rotureau, **N. Michel**, W. Nazarewicz, M. Płoszajczak, and J. Dukelsky,  
Phys. Rev. C **79**, 014304 (2009)

◆ *Shell model in the complex energy plane*  
**N. Michel**, W. Nazarewicz, M. Płoszajczak..., J. Phys. G. Topical Review, **36**, 013101 (2009).

◆ *A simple and efficient numerical scheme to integrate non-local potentials*,  
**N. Michel**, Eur. Phys. J. A **42**, 523 (2009)

◆ *Role of triaxiality in the ground state shape of neutron rich Yb, Hf, W, Os, and Pt isotopes*, L.M. Robledo, **R. Rodriguez-Guzman**, P. Sarriguren, Journal of Physics G **arXiv:0906.0057v1** (2009)

◆ *Halo phenomenon in finite many-fermion systems. Atom-positron complexes and large-scale study of atomic nuclei*, V. Rotival, **K. Bennaceur**, T. Duguet, Phys. Rev. C **79**, 054309 (2009).

## 2008

◆ *Gamow-Hartree-Fock-Bogoliubov method : Representation of quasiparticles with Berggren sets of wave functions*,

**N. Michel**, K. Matsuyanagi and M.V. Stoitsov, Phys. Rev. C **78**, 044319 (2008)

◆ *Evolution of nuclear shapes in medium mass isotopes from a microscopic perspective*, L. M. Robledo, **R. Rodriguez-Guzman**, P. Sarriguren, Phys. Rev. C **78**, 034314 (2008).

◆ *Configuration mixing of angular-momentum and particle-number projected triaxial Hartree-Fock-Bogoliubov states using the Skyrme energy density functional*,

**M. Bender** and P.-H. Heenen, Phys. Rev. C **78**, 024309 (2008)

◆ *Effective shell model Hamiltonians from density functional theory: Quadrupolar and pairing correlations*, **R. Rodriguez-Guzman**, Y. Alhassid, G.F. Bertsch, Phys. Rev. C **77**, 064308 (2008).

◆ *Shape transitions in neutron-rich Yb, Hf, W, Os, and Pt isotopes within a Skyrme Hartree-Fock + BCS approach*,

P. Sarriguren, **R. Rodriguez-Guzman**, L. M. Robledo, Phys. Rev. C **77**, 064322 (2008).

◆ *New efficient method for performing Hartree-Fock-Bogoliubov calculations for weakly bound nuclei*, M. Stoitsov, **N. Michel**, and K. Matsuyanagi, Phys. Rev. C **77**, 054301(2008).

## 2007

◆ *Nuclear charge radii of neutron deficient lead isotopes beyond N=104 mid shell investigated by in-source laser spectroscopy*,

H. De Witte, A. N. Andreyev... **M. Bender**..., Phys. Rev. Lett. **98**, 112502 (2007).

◆ *Global study of the spectroscopic properties of the first 2+ state in even-even nuclei*, B. Sabbey, **M. Bender**, G. F. Bertsch..., Phys. Rev. C **75**, 044305 (2007).

◆ *Large-amplitude Qn-Qp collectivity in the neutron-rich oxygen isotope 200*, A. P. Severyukhin, **M. Bender**, H. Flocard..., Phys. Rev. C **75**, 064303 (2007).

◆ *Tensor part of the Skyrme energy density functional: Spherical nuclei*, T. Lesinski, **M. Bender**, **K. Bennaceur**..., Phys. Rev. C **76**, 014312 (2007).

◆ *Pairing correlations beyond the mean field,*

**M. Bender** and T. Duguet, Int. J. Mod. Phys. E **16**, 222-236 (2007).

◆ *The tensor part of the Skyrme energy density functional. Spherical nuclei",*

T. Lesinski, **M. Bender**, **K. Bennaceur** ..., Phys. Rev. C **76**, 014312 (2007).

## 2006

◆ *Beyond mean-field study of excited states: Analysis within the Lipkin model,*

A.P. Severyukhin, **M. Bender**, P.-H. Heenen, Phys. Rev. C **74**, 024311 (2006).

◆ *Shape coexistence in neutron-deficient Kr isotopes: Constraints on the single-particle spectrum of self-consistent mean-field models from collective excitations,*

**M. Bender**, P. Bonche, P.-H. Heenen, Phys. Rev. C **74**, 024312 (2006).

◆ *Spectroscopy and single-particle structure of the odd-Z heavy elements 255Lr, 251Md, and 247Es,*  
A. Chatillon, Ch. Theisen... **M. Bender**, et al., Eur. Phys. J. **A30**, 397-411 (2006).

◆ *Isovector splitting of nucleon effective masses, ab-initio benchmarks and extended stability criteria for Skyrme energy functionals,*

T. Lesinski, **K. Bennaceur**, T. Duguet..., Phys. Rev. C **74**, 044315 (2006).

◆ *Density matrix renormalisation group and the nuclear shell model,*

S. Pittel and **N. Sandulescu**, Phys. Rev. C **73**, 014301 (2006).

◆ *Physical origin of density dependent forces of Skyrme type within the quark-meson coupling model,*

P.A.M. Guichon, H.H. Matevosyan, **N. Sandulescu**..., Nucl. Phys. **A772**, 1 (2006).

◆ *Quasiparticle resonances in the BCS approach,*

R. Betan, **N. Sandulescu**, T. Vertse, Nucl. Phys. **A771**, 93 (2006)

◆ *Giant neutron halos in the non-relativistic HFB approach*

M. Grasso, S. Yoshida, **N. Sandulescu**..., Phys. Rev. C **74**, 064317 (2006)

## 2005

◆ *Complex shell model representation including antibound states,*

R. Id Betan, R. J. Liotta, **N. Sandulescu**, Phys. Rev. C **72**, 054322 (2005).