

List of publications of ESNT from 2004 to 2017

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>)*)

2017

♦ *On the norm overlap between many-body states. I. Uncorrelated overlap between arbitrary Bogoliubov product states,*

B. Bally, T. Duguet, <https://arxiv.org/abs/1704.05324> (submitted, 18th April 2017).

♦ *Unexpected high-energy γ emission from decaying exotic nuclei,*

A.Gottardo, D.Verney, I.Deloncle, S.Peru, C.Delafose, S.Roccia, I.Matea, C.Sotty, C.AndreoIU, C.Costache, M.-C.Delattre, A.Etile, S.Franchoo, C.Gaulard, J.Guillot, F.Ibrahim, M.Lebois, M.MacCormick, N.Marginean, R.Marginean, **M.Martini**, C.Mihai, I.Mitu, L.Olivier, C.Portail, L.Qi, B.Roussiere, L.Stan, D.Testov, J.Wilson, D.T.Yordanov, Phys.Lett. B **772**, 359 (2017)

doi: 10.1016/j.physletb.2017.06.050

♦ *Electromagnetic dipole and Gamow-Teller responses of even and odd $^{90-94}_{40}\text{Zr}$ isotopes in QRPA calculations with the D1M Gogny force ,* I. Deloncle, S.Péru, **M. Martini**,

Eur. Phys. J. A, **53** 8 (2017) 170. doi: 10.1140/epja/i2017-12354-x

♦ *E1 and M1 strength functions from Average Resonance Capture data,*

J. Kopecky, S. Goriely, S. Péru, S. Hilaire, **M. Martini**, Phys.Rev. C **95**, 054317 (2017).

doi: 10.1103/PhysRevC.95.054317

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

–First Spectroscopy of ^{110}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.*, Phys. Rev. Letters **118**, 032501 (2017). doi: 10.1103/PhysRevLett.118.032501

Works in collaboration with experimentalists from the SPhN LENA group.

♦ *De-excitation of the strongly coupled band in ^{177}Au and implications for core intruder configurations in the light Hg isotopes,*

M. Venhart, F. A. Ali, W. Ryssens, J. L. Wood, D. T. Joss, A. N. Andreyev, K. Auranen, **B. Bally**, M. Balogh, M. Bender, *et al.*, Phys. Rev. C **95**, 061302(R) (2017). doi: 10.1103/PhysRevC.95.061302

◆ *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 23 nov 2016. arXiv:1611.07770v1 [hep-ph].

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".

◆ *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, Phys. Rev. C **94**, 054610 (2016) ; doi: 10.1103/PhysRevC.94.054610
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)

◆ *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, Phys. Rev. C **94**, 054609 (2016).

◆ *Low-energy modification of the γ strength function of the odd-even nucleus ^{115}In* ,
M. Versteegen, D. Denis-Petit, V. Méot, Th. Bonnet, M. Comet, F. Gobet, F. Hannachi, M. Tariesien, 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 γ -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).

◆ *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".

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

◆ *Ab initio-driven nuclear energy density functional method, a proposal for safe/correlated/improvable parametrizations of the off-diagonal EDF kernels,*

T. Duguet, M. Bender, J.-P. Ebran, **T. Lesinski**, and V. Somà, Eur. Phys. J. A **51** 12 (2015) 162, Topical issue, “Perspectives on Nuclear Data for the Next Decade”, International Workshop PND2-2, CEA DAM, October 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).

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- ◆ *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,
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- ◆ *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 α -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).

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◆ *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).

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♦ *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).

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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).

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

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

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

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

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