List of publications of ESNT from 2004 to 2018

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 when the paper is prepared). 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 CEA, ESNT du post-doc*
(fiche actualisée sur le site Web http://esnt.cea.fr/index.php?id=10&ref=1)

2018

♦ *Bogoliubov many-body perturbation theory for open-shell nuclei*,
A. Tichai, P. Arthuis, T. Duguet, V. Somà, H. Hergert, R. Roth, submitted to *Phys. Lett. B* (2018).
arXiv :1806.10931

♦ *ADG: Automated generation and evaluation of many-body diagrams, I. Bogoliubov many-body perturbation theory,*
P. Arthuis, T. Duguet, ***A. Tichai***, R.-D. Lasseri, J.-P. Ebran, submitted to *Comp. Phys. Comm.* (2018).
arXiv :1809.01187

♦ *Open-Shell Nuclei from No-Core Shell Model with Perturbative Improvement,*
A. Tichai, E. Gebrerufael, K. Vobig, R. Roth, *Phys. Lett. B* **786**, 448-452 (2018).
arXiv :1703.05664, doi:10.1016/j.physletb.2018.10.029

♦ *Norm overlap between many-body states: Uncorrelated overlap between arbitrary Bogoliubov product states*, ***B. Bally***, T. Duguet, Phys. Rev. C **97**, 024304 (2018).
arXiv: 1704.05324, doi : 10.1103/PhysRevC.97.024304

♦ *Neutrino-nucleus cross sections and oscillation experiments,*
T. Katori, ***M. Martini***, J.Phys. G **45**, 013001 (2018). arXiv:1611.07770v1

♦ *NuSTEC White Paper: Status and Challenges of Neutrino-Nucleus Scattering,* L. Alvarez-Ruso, M. Sajjad Athar, M.B. Barbaro, D. Cherdack, M.E. Christy, P. Coloma, T.W. Donnelly, S. Dytman, A. de Gouvea, R.J. Hill, P. Huber, N. Jachowicz, T. Katori, A.S. Kronfeld, K. Mahn, ***M. Martini***, J.G. Morfin, J. Nieves, G. Perdue, R. Petti, D.G. Richards , F. Sanchez, T. Sato, J.T. Sobczyk, G.P. Zeller,
Progress in Particle and Nuclear Physics **100**, 1 (2018).
arXiv:1706.03621 ; doi:10.1016/j.ppnp.2018.01.006

2017

♦ *De-excitation of the strongly coupled band in 177Au 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

♦ *Unexpected high-energy γ emission from decaying exotic nuclei,*
A.Gottardo, D.Verney, I.Deloncle, S.Peru, C.Delafosse, 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 $^{90\text{-}94}{}_{40}Zr$ 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. Lett. **118**, 032501 (2017). doi: 10.1103/PhysRevLett.118.032501
Article of experimentalists from the SPhN LENA group in collaboration with theorists.

♦ *Beyond-mean-field correlations and the description of superheavy elements*,
Paul-Henri Heenen, Benjamin Bally, Michael Bender and Wouter Ryssens,
Nobel Symposium NS 160 – Chemistry and Physics of Heavy and Superheavy Elements,
EPJ Web of Conferences **131**, 02001 (2016). https://doi.org/10.1051/epjconf/201613102001

♦ *Modeling the double charge exchange response function for a tetraneutron system*,
R. Lazauskas, J. Carbonell, and E. Hiyama, Prog. Theor. Exp. Phys. 073D03 (2017).
https://doi.org/10.1093/ptep/ptx078
Works partly done during the ESNT workshops organized in 2016 and 2017 "Computation of three- and four-neutron resonances" and "Dynamics of highly unstable exotic light nuclei and few-body systems".
(a*cknowledgements for the ESNT support).*

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). doi: https://doi.org/10.1103/PhysRevLett.117.052501
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".*

♦ *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. 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).
♦ *Nuclear response functions with finite range Gogny force: tensor terms and instabilities*,
A. De Pace and ***M. Martini***, Phys. Rev. C **94**, 024342 (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).

♦ *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).
♦ *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).
♦ *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).
♦ *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).

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).
doi: https://doi.org/10.1103/PhysRevC.92.034313

♦ *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).
doi: https://doi.org/10.1103/PhysRevC.91.064320

♦ *Weakly bound Borromean structures of the exotic ^{6,8}He nuclei through direct reactions on proton,*
V. Lapoux and N. Alamanos, Eur. Phys. J. A. **51**, 91 (2015).
Works discussed during the ESNT workshop in April 2014, "Radioactive ion beam experiments and three-nucleon forces".

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). doi: https://doi.org/10.1103/PhysRevC.89.054305

♦ *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. Ploszajczak, Phys. Rev. C **82**, 044315 (2010).

♦ *Energy Density Functional Study of Nuclear Matrix Elements for Neutrinoless ββ Decay,*
T. R. Rodríguez and G. 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 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. Ploszajczak..., 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. Rodríguez -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. Rodríguez -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. Rodríguez -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. Rodríguez -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***, *et al.,* 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, *et al.,* Phys. Rev. C **75**, 044305 (2007).

♦ *Large-amplitude Qn-Qp collectivity in the neutron-rich oxygen isotope 20O,*
A. P. Severyukhin, ***M. Bender***, H. Flocard, *et al.,* Phys. Rev. C **75**, 064303 (2007).

♦ *Tensor part of the Skyrme energy density functional: Spherical nuclei,*
T. Lesinski, **M*. Bender, K. Bennaceur,*** T.Duguet and J. Meyer, Phys. Rev. C **76**, 014312 (2007).
doi: https://doi.org/10.1103/PhysRevC.76.014312

♦ *Pairing correlations beyond the mean field,*
M. Bender and T. Duguet, Int. J. Mod. Phys. E **16,** 222-236 (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. A**30**, 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*** *et al.,* 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*** *et al.,* 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).