

CURRICULUM VITAE

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BIRTH : March 13, 1974 in Barcelona, Spain

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ACADEMIC DEGREES

- September 1996: Graduate in Physics, University of Barcelona.
- 1996-1998: Post-Graduate Courses on Particle Physics, Quantum Field Theory and Many-Body Physics, University of Barcelona
- June 2001: Ph.D. in Physics, University of Barcelona

Title of the thesis: “*Description of hyperonic matter and hyper-nuclei within the Brueckner–Hartree–Fock theory*”¹

Advisers: Dr. Artur Polls and Dr. Àngels Ramos

PREVIOUS POSITIONS

- Post-doctoral fellow of the “Istituto Nazionale di Fisica Nucleare” from November 2001 to November 2003 at Dipartimento di Fisica “Enrico Fermi”, Università di Pisa (Italy).

PRESENT STATUS

- Post-doct of the Gesellschaft für Schwerionenforschung (GSI), Darmstadt (Germany) from November 2003.

LIST OF PUBLICATIONS:

1. “*Hyperon properties in finite nuclei using realistic YN interactions*”. I. Vidaña, A. Polls, A. Ramos and M. Hjorth–Jensen, Nucl. Phys. A **644**, 201 (1998).
2. “*Binding energy of Λ hypernuclei from realistic YN interactions*”. I. Vidaña, A. Polls, A. Ramos and M. Hjorth–Jensen. Proceedings of the *7th Conference Mesons and Light Nuclei’98*. World Scientific, 1999. p. 228.

¹Full text of thesis in <http://www.tdcat.cesca.es/TDCat-0709102-133910/>

3. “*Efectos de la extrañeza en el medio nuclear*”. I. Vidaña, A. Polls, A. Ramos, L. Engvik y M.Hjorth–Jensen. Resúmenes de las comunicaciones de la *XXVII Reunión Bienal de la Real Sociedad Española de Física*. Tomo II. Universidad de Valencia, 1999. p. 571.
4. “*Strange nuclear matter within Brueckner–Hartree–Fock theory*”. I. Vidaña, A. Polls, A. Ramos, M. Hjorth–Jensen and V. G. J. Stoks. *Phys. Rev. C* **61**, 025802 (2000).
5. “*Hyperon-hyperon interactions and properties of neutron star matter*”. I. Vidaña, A. Polls, A. Ramos, L. Engvik and M. Hjorth–Jensen. *Phys. Rev. C* **62**, 035801 (2000).
6. “*Hyperon effects on the properties of β -stable neutron star matter*”. I. Vidaña, A. Polls, A. Ramos, L. Engvik and M. Hjorth–Jensen. *Nucl. Phys. A* **691**, 443 (2001).
7. “*Hypernuclear structure with the new Nijmegen potentials*”. I. Vidaña, A. Polls, A. Ramos and H.-J. Schulze. *Phys. Rev. C* **64**, 044301 (2001).
8. “*Spin polarized neutron matter and magnetic susceptibility within the Brueckner–Hartree–Fock approximation*”. I. Vidaña, A. Polls and A. Ramos. *Phys. Rev. C* **65**, 035804 (2002).
9. “*Equation of state and magnetic susceptibility of spin polarized isospin asymmetric nuclear matter*”. I. Vidaña and I. Bombaci. *Phys. Rev. C* **66**, 045801 (2002).
10. “*Magnetic properties and EoS of spin polarized isospin asymmetric nuclear matter*”. I. Vidaña and I. Bombaci. To appear in the proceedings of the *4th Catania Relativistic Ion Studies. Exotic Clustering*. Catania, Italy, June 10-14 2002. AIP Conference Proceedings Volume **644**, 319 (2002).
11. “*Microscopic study of neutrino trapping in hyperon stars*”. I. Vidaña, I. Bombaci, A. Polls and A. Ramos. *A&A* **399**, 687 (2003).
12. “*Role of hyperons on neutron star structure and evolution*”. I. Vidaña, I. Bombaci, A. Polls and A. Ramos. To appear in the proceedings of the *IX Convegno su problemi di fisica nucleare teorica. Programma di interesse nazionale su: fisica teorica del nucleo e dei sistemi a molti corpi*. Cortona, Italy. October 9–12 2002. World Scientific, 409 (2003).
13. “*Neutrino trapping effects on β -stable neutron star matter*”. I. Vidaña, I. Bombaci, A. Polls and A. Ramos. *Nucl. Phys. A* **719** 173, (2003).

14. “*Microscopic calculation of neutrino mean free path inside hot neutron matter*”. J. Margueron, I. Vidaña and I. Bombaci. Phys. Rev. C **68**, 055806 (2003).
15. “ *Λ bond energy from the Nijmegen potentials*”. I. Vidaña, A. Ramos and A. Polls. Phys. Rev. C **70**, 024306 (2004).
16. “*Quark deconfinement and implications for the radius and the limiting mass of compact stars*”. I. Bombaci, I. Parenti and I. Vidaña. ApJ **614**, 314 (2004).
17. “*Superfluidity of Σ^- hyperons in β -stable neutron star matter*”. I. Vidaña and L. Tolós. Phys. Rev. C **70**, 028802 (2004).
18. “*Equation of state of hypernuclear matter and neutron stars*”. A. Rios, A. Polls, A. Ramos and I. Vidaña. “This Hyspalensis Lectures on Nuclear Physics”, Vol. 2. Ed. J. M. Arias and M. Lozano. Lectures Notes in Physics, 652 Springer-Verlag, Berlin A (2004).
19. “*Role of hyperons on the hadron star to quark star conversion mechanism*”. I. Vidaña, I. Bombaci and I. Parenti. Nucl. Phys. A **754**, 345c (2005).
20. “*Quark deconfinement and neutrino trapping in compact stars*”. I. Vidaña, I. Bombaci and I. Parenti. J. Phys. G: Nucl. Part, Phys. **31**, S1165 (2005).
21. “*Spin-orbit and tensor interactions in homogeneous matter of nucleons: accuracy of modern many-body theories*”. I. Bombaci, A. Fabrocini, A. Polls and I. Vidaña. Phys. Lett. B **609**, 232 (2005).
22. “*Ferromagnetic instabilities in neutron matter at finite temperature with the Skyrme interaction*”. A. Rios, A. Polls and I. Vidaña. Phys. Rev C **71**, 055802 (2005).
23. “*Bulk and single-particle properties of hyperonic matter at finite temperature*”. A. Rios, A. Polls, A. Ramos and I. Vidaña. Phys. Rev. C **72**, 024316 (2005).
24. “*Microscopic calculations of spin polarized neutron matter at finite temperature*”. I. Bombaci, A. Polls, A. Ramos, A. Rios and I. Vidaña. Phys. Lett. B **632**, 638 (2006).

CONTRIBUTED TALKS IN CONFERENCES OR WORKSHOPS:

1. “*Binding energy of Λ -hypernuclei from realistic YN interactions*”. Conference Mesons and Light Nuclei’98. Prague–Pruhonice, Czech Republic. Institute of Nuclear Physics and Academy of Sciences of the Czech Republic, Rez. August 31 - September 4 1998.

2. “*Effects of strangeness in the nuclear medium*”. *XXVII Reunión Biental de la Real Sociedad Española de Física*. Valencia, Spain. September 20–24 1999.
3. “*Strange nuclear matter within Brueckner–Hartree–Fock theory*”. *International Workshop on Heavy-Ion Reaction Modelling*. Bergen. Norway. November 19–21 1999.
4. “*Properties of β -stable neutron star matter with hyperons*”. *International Workshop on Physics of the Neutron Star Interiors*. Trento. Italy. June 19 - July 7 2000.
5. “*Hyperon-hyperon interactions and properties of neutron star matter*”. *VII International Conference on Hypernuclear and Strange Particle Physics*. Torino. Italy. October 23–27 2000.
6. “*Magnetic properties and EoS of spin polarized isospin asymmetric nuclear matter*”. *4th Catania Relativistic Ion Studies. Exotic Clustering*. Catania, Italy, June 10-14 2002.
7. “*Neutrino trapping effects on β -stable neutron star matter*”. *Nuclear Physics in Astrophysics. 17th International Nuclear Physics Divisional Conference of the EPS*. ATOMKI, Debrecen, Hungary, September 30 - October 4 2002.
8. “*Role of hyperons on neutron star structure and evolution*”. *IX Convegno su problemi di fisica nucleare teorica. Programma di interesse nazionale su: fisica teorica del nucleo e dei sistemi a molti corpi*. Cortona, Italy. October 9–12 2002.
9. “*Equation of state and magnetic susceptibility of spin polarized isospin asymmetric nuclear matter*”. *Workshop on Short and Long-range Contributions to Nuclear Binding and Saturation*. Trento. Italy. June 2 – 8 2003.
10. “*Neutrino trapping effects on β -stable neutron star matter*”. *Workshop on The Physics of Compact Stellar Objects*. Valencia. Spain. September 8–11 2003.
11. “*Implications of a strange quark matter phase in the radius and the mass of compact objects*”. *VIII International Conference on Hypernuclear and Strange Particle Physics*. Jefferson Lab, Newport News, Virginia, USA. October 14–18 2003.
12. “*Implications of quark deconfinement in the radius and limiting mass of compact objects*”. *International Nuclear Physics Conference, INPC2004*. Göteborg, Sweden. June 27 - July 2 2004.

13. “*Quark deconfinement and neutrino trapping in compact stars*”. VIII International Conference on Strangeness in Quark Matter, SQM2004. Cape Town, South Africa. September 15–20 2004.
14. “*Ferromagnetic instabilities in neutron matter at finite temperature*”. Structure and Reactions of Exotic Nuclei. Pisa, Italy. February 24–26 2005.
15. “*Ferromagnetic instabilities in neutron matter at finite temperature*”. Many body Physic of Neutron Stars. INPN Orsay, France. April 5–7 2005

SEMINARS

1. “*Hyperon properties in finite nuclei using realistic YN interactions*”. Departament d’Estructura i Constituents de la Matèria. Facultat de Física. Universitat de Barcelona. Spain. June 1998.
2. “*Binding energy of Λ -hypernuclei from realistic YN interactions*”. Institute of Nuclear Physics and Academy of Sciences of the Czech Republic, Rez. Prague, Czech Republic. September 1998.
3. “*Hyperon properties in finite nuclei using realistic YN interactions*”. Department of Physics. University of Oslo. Norway. February 1999.
4. “*Strange nuclear matter within Brueckner–Hartree–Fock theory*”. Department of Physics. University of Oslo. Norway. December 1999.
5. “*Strange nuclear matter within Brueckner–Hartree–Fock theory*”. Departament d’Estructura i Constituents de la Matèria. Facultat de Física. Universitat de Barcelona. Spain. January 2000.
6. “*Properties of β -stable neutron star matter with hyperons*”. Departament d’Estructura i Constituents de la Matèria. Facultat de Física. Universitat de Barcelona. Spain. October 2000.
7. “*Hyperonic matter and hyperon effects on neutron star matter*”. Dipartimento di Fisica “Enrico Fermi”, Università di Pisa. Italy. September 2001.
8. “*Equation of state and magnetic susceptibility of spin polarized isospin asymmetric nuclear matter*”. Departament d’Estructura i Constituents de la Matèria. Facultat de Física. Universitat de Barcelona. Spain. April 2002.
9. “*Equation of state of β -stable matter and neutron stars*”. Departamento de Física, Universidad de Oviedo. Spain. October 2002.

10. “*Equation of state and magnetic susceptibility of spin polarized isospin asymmetric nuclear matter*”. GSI, Darmstadt. Germany. February 2003.
11. “*Equation of state and magnetic susceptibility of spin polarized isospin asymmetric nuclear matter*”. Dipartimento di Fisica “Enrico Fermi”, Università di Pisa. Italy. February 2003.
12. “*Equation of state and magnetic susceptibility of spin polarized isospin asymmetric nuclear matter*”. ECT*. Trento. Italy. March 2003.
13. “*Quark deconfinement, radius and maximum mass of compact objects*”. Dipartimento di Fisica, Università di Catania. Catania. Italy. July 2003.
14. “*Quark deconfinement, radius and maximum mass of compact objects*”. Institut für Theoretische Physik. Johann Wolfgang Goethe Universität. Frankfurt and Main. January 2004.
15. “*Implications of quark deconfinement for the radius and maximum mass of compact objects*”. GSI, Darmstadt. Germany. February 2004.

SHORT RESEARCH STAYS:

1. Department of Physics, University of Oslo (Norway). January-February 1999.
2. Department of Physics, University of Oslo (Norway). November-December 1999.
3. European Centre for Theoretical Studies in Nuclear Physics and Related Areas, Trento (Italy). June-July 2000.

PARTICIPATION AT SCHOOLS AND COURSES

Schools

1. *European Summer School on Microscopic Quantum Many-Body Theories and their applications*. Universidad Internacional Menéndez Pelayo. Valencia, Spain. September 8–19 1997.
2. *XI Indian–Summer School on Intermediate Energy Physics*. Institute of Nuclear Physics and Academy of Sciences of the Czech Republic, Rez. Prague, Czech Republic. September 7–11 1998.
3. *Second European Summer School on Microscopic Quantum Many-Body Theories and their applications*. Miramare. Trieste, Italy. September 3–14 2001.

Courses

1. *Introduction to Finite Temperature Many-Body Methods*. Given by Prof. T. T. S. Kuo from the University of Stony Brook (USA), at the University of Barcelona. March–April 1997.
2. *Many-Body Theory of Electron Gas, Quantum Dots and Metal Clusters*. Given by Prof. Enrico Lipparini from the University of Trento (Italy), at the University of Barcelona. May–June 1997.
3. *Statistical Mechanics of Quantum Fluids*. Given by Prof. C. E. Campbell from the University of Minnesota (USA), at the University of Barcelona. September 1997.
4. *Introduction to the NN interaction*. Given by Prof. R. Machleidt from the University of Idaho (USA), at the University of Barcelona. December 1998.
5. *Aspects of Strangeness in Nuclear Physics*. Given by Prof. A. Gal from the Racah Institute of Physics (Israel), at the University of Barcelona. September 1999.
6. *Nuclear methods and the nuclear equation of state*. Given by Prof. M. Baldo from the University of Catania (Italy), at the University of Barcelona. December 2000.

OTHER THINGS:

- March-June 1997: Temporal teaching position (Profesor asociado sustituto de tipo 1) at Facultat de Física (University of Barcelona). Classes on *Mathematical Analysis*.
- January 1998 - Decembre 2001: Doctoral Fellowship from the *Ministerio de Educación y Cultura, Spain*.
- Since December 2002 referee of *Physical Review*.
- Languages: Spanish, Catalan (mother tongues), English and Italian

REFERENCES:

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