

# Paolo Finelli

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## PERSONAL INFORMATIONS

Birth Date : 01/03/1975  
Birth Place: Bologna

## ADDRESSES

**Home:**  
Via di Villa Pardo 4  
Bologna, 40134 (BO)  
Telephone: 0516151422  
Mobile Telephone: 3355642183

**Office:**  
University of Bologna  
Department of Physics  
Bologna, 40126, Via Irnerio 46  
Telephone: 051-2091188  
Fax: 051- 244101

## E-MAIL

paolo.finelli@bo.infn.it  
paolo.finelli@unibo..it  
pfinelli@ph.tum.de

## RESERCH AND EXPERIENCE

*Ricercatore non confermato (Assistant  
Professor)*

**Department of Physics  
University of Bologna  
October 2005 – Now**

*Post-Doc Position, T39 Theory Group*

**Department of Physics  
Technical University of München  
October 2004 – October 2005**

*Post-Doc Position, Theory Group*

**ECT\*, European Center for  
Theoretical Nuclear Physics  
April 2003 – October 2004**

## EDUCATION

Ph. D. in Physics, March 2003;  
“From a relativistic mean-field approach towards a nuclear structure description constrained by QCD and chiral symmetry ”  
Advisors: Prof. Giovanni Carlo Bonsignori and Prof. Dr. Dario Vretenar  
University of Bologna, Italy

M. Sc. Degree in Physics, December 1999; :  
“Violazione della parità nella diffusione di elettroni e misura della distribuzione dei neutroni nei nuclei esotici”  
(Parity violation effects in polarized elastic electron scattering and measure of neutron density distributions in exotic nuclei)  
Advisors: Prof. Giovanni Carlo Bonsignori, Prof. Dr. Dario Vretenar and Dr. Alberto Ventura  
University of Bologna, Italy

## TEACHING

Tutor for the following courses at the Department of Electrical Engineering of the University of Bologna

- **2001:** Classical Mechanics
- **2002:** Electrodynamics
- **2003:** Classical Mechanics and Electrodynamics

Tutor for the following courses at the Department of Physics of the University of Bologna

- **2006:** Nuclear Physics (first semester), Introduction to Nuclear and Subnuclear Physics (second semester)
- **2007:** Nuclear Physics (first semester)

In **2008** Teacher of the "Nuclear Forces Theory" course (6 credits)

Supervisor for the following dissertations (Bachelor)

- Emanuele Poggioli,  
*Nucleosintesi di elementi con  $A \leq 60$ ,*  
2005-2006
- Matteo Vorabbi,  
*Applicazioni di modelli di campo medio relativistico alla fisica dei nuclei esotici,*  
2006-2007

and (Master Science)

- Nicoló Masi,  
*Applicazioni di dinamica chirale nel mezzo nucleare,*  
2009

## SKILLS

- Languages:
  - Italian : mother tongue
  - English : fluently
  - French : basic
- Operative Systems: Windows 2000/XP, Unix and Linux (System Administrator experience)
- Programming: Fortran 77/90, C, C++, Mathematica<sup>TM</sup> and HTML
- Text writing: L<sup>A</sup>T<sub>E</sub>X and Office suite programs

## SCHOOLS AND CONFERENCES

- *Bologna 2000: Structure of the nucleus at the dawn of the century*  
Bologna, Italy  
29 may - 3 june 2000  
Poster
- Nato Advanced Research Workshop  
*The Nuclear Many-Body Problem*  
Brijuni National Park, Pula, Croatia  
2 - 5 june 2001
- ECT\* Workshop  
*Current theoretical and experimental investigations of the nuclear many-body problem and applications*  
Trento, Italy  
24 september - 3 october 2001  
Talk
- CINECA courses, *Introduction to C++*  
Bologna, Italy  
26 - 30 november 2001

- *Corso CLIII "From nuclei and their constituents to stars"*  
Varenna (CO), Italy  
6 - 16 august 2002
- *3rd International balkan school on nuclear physics*  
Salonicco, Greece  
18 - 24 september 2002  
Talk
- *IX Convegno su Problemi di Fisica Nucleare Teorica*  
Cortona (AR), Italy  
9 - 12 october 2002  
Talk
- *307. WE-Heraeus-Seminar, Relativistic Structure Models for the Physics of Radioactive Nuclear Beams*  
Bad Honnef, Germany  
12 - 16 may 2003  
Talk
- *ECT\* DOCTORAL TRAINING PROGRAMME 2003: Nuclear Structure*  
For a complete list of workshops and seminars please see [www.ect.it](http://www.ect.it)  
Trento, Italy  
may - october 2003  
Talks
- ECT\* Workshop  
*Role of Pions and Deltas in Nuclear Many-Body Dynamics (collaboration meeting)*  
Trento, Italy, 10 - 15 november 2003  
Talk
- *DPG Nuclear Physics Spring meeting*  
Köln, Germany  
8 - 12 march 2004  
Talk
- *ECT\* DOCTORAL TRAINING PROGRAMME 2004: Neutrino Physics*  
For a complete list of workshops and seminars please see [www.ect.it](http://www.ect.it)  
Trento, Italy may - october 2004
- ECT\* Workshop  
*ECT\*-APCTP International Workshop on Novel Approaches to the Nuclear Many-Body Problem*  
Trento, Italy  
6 - 17 september 2004  
Talk
- *INT Workshop on Relativistic Density Functional Theory for Nuclear Structure*  
Seattle, USA, 20 - 24 september 2004  
Talk
- *X Convegno su Problemi di Fisica Nucleare Teorica*  
Cortona (AR), Italy, 6 - 9 october 2004  
Talk
- *DPG Nuclear Physics Spring meeting*  
Berlin, Germany  
4 - 9 march 2005  
Talk
- *INT Workshop: Towards a universal density functional for nuclei*  
Seattle, USA  
20 - 25 september 2005  
Talk
- *DPG Nuclear Physics Spring meeting*  
Münich, Germany  
20 - 24 march 2006  
Talk

- *COMEX 2, Collective Motion in Nuclei under Extreme Conditions*  
Sankt Goar, Germany, 20 - 23 june 2006  
Talk
- *IX International Conference on Hypernuclear and Strange Particle Physics*  
Mainz, Germany, 10 - 14 october 2006  
Talk
- *DPG Nuclear Physics Spring meeting*  
Giessen, Germany  
12 - 16 march 2007  
Talk
- *Theoretical nuclear physics school: "Exotic Nuclei: New Challenges"*  
Les Houches, France  
7 - 18 may 2007  
Invited Talk
- *Scuola di Fisica Nucleare, Raimondo Anni*  
Otranto, Italy  
28 may - 2 june 2007  
Invited Talk
- *14th International Conference on Recent Progress in Many-Body Theories*  
Barcelona, Spain  
16 - 20 july 2007  
Poster
- *DPG Nuclear Physics Spring meeting*  
Darmstadt, Germany  
10 - 14 march 2008  
Talk
- *Zakopane Conference on Nuclear Physics*  
Zakopane, Poland  
1 - 7 september 2008  
Talk
- *XII Convegno su Problemi di Fisica Nucleare Teorica*  
Cortona (AR), Italy  
8 - 10 october 2008  
Talk
- *International Conference on Particles And Nuclei (PANIC08)*  
Eilat, Israel  
9 - 14 november 2008  
Talk

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### PUBLICATIONS

D. Vretenar, P. Finelli, A. Ventura, G. A. Lalazissis and P. Ring, "Parity violating elastic electron scattering and neutron density distributions in the relativistic Hartree-Bogoliubov model," *Phys. Rev. C* **61**, 64307-64316 (2000), [arXiv:nucl-th/9911024]  
12 citations form SLAC archive.

D. Vretenar, P. Finelli, A. Ventura, G. A. Lalazissis and P. Ring, "Parity violating elastic electron scattering and neutron density distributions in the Relativistic Hartree-Bogoliubov model," Atti della conferenza *Bologna 2000: Structure of the Nucleus at the Dawn of the Century*, 93-96, World Scientific 2001.

T. Nikšić, D. Vretenar, P. Finelli and P. Ring, "Relativistic Hartree-Bogoliubov model with density-dependent meson-nucleon couplings," *Phys. Rev. C* **66**, 24306-24320 (2002), [arXiv:nucl-th/0205009].  
81 citations form SLAC archive.

D. Vretenar, P. Ring, G. A. Lalazissis, T. Nikšić, P. Finelli and N. Paar, "Relativistic mean field and RPA description of exotic nuclear structure", Atti della conferenza *Frontiers of Nuclear Structure*, 211-218, APS (2002).

P. Finelli, N. Kaiser, D. Vretenar and W. Weise, "Nuclear many-body dynamics constrained by QCD and chiral symmetry," *Eur. Phys. J. A* **17**, 573-578 (2003), [arXiv:nucl-th/0205016].  
32 citations form SLAC archive.

P. Finelli, D. Vretenar, N. Kaiser and W. Weise, "Nuclear many-body dynamics constrained by QCD and chiral symmetry", Conference Proceedings of *IX Convegno su Problemi di Fisica Nucleare Teorica*, 223-230, World Scientific (2003).

D. Vretenar, T. Nikšić, P. Ring, N. Paar, G. A. Lalazissis and P. Finelli, "Relativistic Hartree-Bogoliubov and QRPA description of exotic nuclear structure," *Eur. Phys. J. A* **20**, 75-80 (2004).

P. Finelli, N. Kaiser, D. Vretenar and W. Weise, "Relativistic nuclear point-coupling model constrained by QCD and chiral symmetry," *Nucl. Phys. A* **735**, 449-481 (2004), [arXiv:nucl-th/0307069].  
43 citations form SLAC archive.

P. Finelli, D. Vretenar, N. Kaiser and W. Weise, "Nuclear density functional constrained by low-energy QCD", Conference Proceedings of *X Convegno su Problemi di Fisica Nucleare Teorica*, 045-052, World Scientific (2005).

P. Finelli, N. Kaiser, D. Vretenar and W. Weise, "Relativistic nuclear energy density functional constrained by low-energy," *Nucl. Phys. A* **770**, 1-31 (2006), [arXiv:nucl-th/0509040].  
21 citations form SLAC archive.

P. Finelli, D. Vretenar, N. Kaiser and W. Weise, "Description of spin and isospin collective excitations with a nuclear energy density functional constrained by low-energy QCD," *Nucl. Phys. A* **788** 284-289 (2007).

P. Finelli, N. Kaiser, D. Vretenar and W. Weise, "Chiral pion-nucleon dynamics in finite nuclei: Spin-isospin excitations," *Nucl. Phys. A* **791** 57-67 (2007), [arXiv:nucl-th/0612026].  
4 citations form SLAC archive.

P. Finelli, N. Kaiser, D. Vretenar and W. Weise, "In-medium chiral SU(3) dynamics and hypernuclear structure," *Phys. Lett. B* **658** 90-94 (2007), [arXiv:0707.3389].  
2 citations form SLAC archive.

P. Finelli, "Hypernuclei and in-medium chiral dynamics," *Eur. Phys. J. ST* **156** 183-190 (2008), [arXiv:0709.2298].

P. Finelli, "Applications of in-medium chiral dynamics to nuclear structure," Conference Proceedings of the 14th International Conference on *Recent Progress in Many-Body Theories*, 176-180, World Scientific (2008).

P. Finelli, N. Kaiser, D. Vretenar and W. Weise, "Applications of in-medium chiral SU(3) dynamics: spectroscopy of hypernuclei", to submit to *Nucl. Phys. A*.

P. Finelli, "Applications of in-medium chiral dynamics to nuclear structure", contribution to Zakopane 2008, *Acta Phys. Pol. B*.

P. Finelli, "Relativistic models for nuclear structure and low-energy QCD", Conference Proceedings of *X Convegno su Problemi di Fisica Nucleare Teorica*, World Scientific (2009).

P. Finelli, N. Kaiser, D. Vretenar and W. Weise, contribution to PANIC08 *Nucl. Phys. A* and World Scientific.

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COLLABORATORS    Giovanni Carlo Bonsignori  
Professor  
Department of Physics, University of Bologna, Italy  
[bonsignori@bo.infn.it](mailto:bonsignori@bo.infn.it)

Dario Vretenar  
Professor  
Department of Physics, University of Zagreb, Croatia  
[vretenar@phy.hr](mailto:vretenar@phy.hr)

Wolfram Weise  
Professor  
Department of Physics, Technical University of Munich, Germany  
[weise@ph.tum.de](mailto:weise@ph.tum.de)

Norbert Kaiser  
Professor  
Department of Physics, Technical University of Munich, Germany  
[nkaiser@ph.tum.de](mailto:nkaiser@ph.tum.de)

Peter Ring  
Professor  
Department of Physics, Technical University of Munich, Germany  
[ring@ph.tum.de](mailto:ring@ph.tum.de)

Tamara Nikšić  
Professor Assistant  
Department of Physics, University of Zagreb, Croatia  
[niksic@phy.hr](mailto:niksic@phy.hr)

Nils Paar  
Professor Assistant  
Department of Physics, University of Zagreb, Croatia  
[paar@phy.hr](mailto:paar@phy.hr)

Georgios Lalazisis  
Professor  
Department of Physics, University of Thessaloniki, Greece  
[glalazisis@ph.tum.de](mailto:glalazisis@ph.tum.de)

MORE  
INFORMATIONS

- Referee for Phys. Rev. C, Nucl. Phys. A, Phys. Lett. B
- Associated to the initiative ENSAR 07 (FP7)