Omar Benhar Noccioli

Curriculum Vitae

(last updated on June 13, 2025)

Personal information

Family name, First name: Benhar Noccioli, Omar

Nationality: Italian

Date of birth: October 28, 1953

URL for web site: http://chimera.roma1.infn.it/OMAR/personal/index.html

- **Education**

1978	Scuola di Perfezionamento in Fisica, , "Sapienza" University, Rome, Italy.
1975	Laurea in Fisica, *magna cum laude,* "Sapienza" University, Rome, Italy.

- **Current positions**

2020 –	:	Senior Research Associate. Istituto Nazionale di Fisica Nucleare (INFN), Roma, Italy
2013 –	:	Adjunct Professor, Center for Neutrino Physics at Virginia Tech, Blacksburg,Virginia 24061, USA.

- **Previous positions**

2004 – 2020	Research Director, Istituto Nazionale di Fisica Nucleare (INFN), Roma, Italy.
2004 – 2020	Professor, Department of Physics, "Sapienza" University, Rome, Italy.
09/19 – 12/19	Visiting Scientist. CERN Theory Division.
08/13 – 03/14	Visiting Professor, Department of Physics, Virginia Tech, Blacksburg, Virginia, USA.
08/97 – 08/98	Visiting Professor, Old Dominion University, Norfolk, Virginia, USA & Visiting Scientist, Theory Group, Jefferson Lab, Newport News, Virginia, USA.
01/94 – 06/94	Visiting Scientist, International School for Advanced Studies (SISSA), Trieste, Italy.
08/91 – 08/93	Visiting Research Professor, University of Illinois at Urbana-Champaign, Urbana, Illinois, USA.
01/82 – 11/04	Researcher, Istituto Nazionale di Fisica Nucleare (INFN), Rome, Italy.
08/78 – 08/79	Lecturer, Universita` della Calabria, Cosenza, Italy.
06/76 – 12/77	Fellow, Physics Laboratory, Istituto Superiore di Sanità, Roma, Italy.
01/76 – 06/76	Visiting Scientist, Department of Physics, University of Oulu, Finland.

- **Supervision of graduate students and postdoctoral fellows (since 2005)**

2 postdoctoral fellows. INFN and "Sapienza" University, Rome, Italy, and International School for Advanced Studies (SISSA), Trieste, Italy.
7 PhD students, "Sapienza" University, Rome, Italy.
1 PhD student, Universita` Roma 3, Roma, Italy.
1 PhD student, International School for Advanced Studies (SISSA), Trieste, Italy.
23 Master students, "Sapienza" University, Rome, Italy.

- **Teaching**

1997 – 1998	Graduate Quantum Mechanics I & II. Old Dominion University, Norfolk, Virginia, USA.
1998 – 2009	Relativistic Quantum Mechanics, Electroweak Interactions and Gauge Theories. "Sapienza" University, Rome, Italy.
2005 – 2006	Physics of Dense Matter. "Sapienza" University, Rome, Italy.
2007 – 2021	Structure and Dynamics of Compact Stars. Doctoral School "Vito Volterra" at "Sapienza" University, Rome, Italy.
2010 – 2012	Gauge Theories. "Sapienza" University, Rome, Italy.
2013 – 2019	Quantum Electrodynamics. "Sapienza" University, Rome, Italy.
2017 – 2019	Relativistic Quantum Mechanics. "Sapienza" University, Rome, Italy.
2017	Introductory Nuclear Physics. University of Okayama, Japan

- **Organisation of scientific meetings**

1998 – 2020	Founder and co-organiser of the Workshop on Lepton-Nucleus Scattering (Marciana Marina, Italy). Biennial meeting sponsored by INFN and the United States Department of Energy (DOE). International attendance of about fifty, including a sizeable fraction of postdoctoral fellows and PhD students.
2002 – 2018	Co-organiser of the 2002, 2004, 2005, 2007, 2009, 2011, and 2015 editions of the International Workshop on Neutrino Nucleus Interactions in the few GeV region (NUINT). Chair of the Organizing Committee of NUINT 2018, held at the Gran Sasso Science Institute (GSSI).

- **Commissions of trust**

2005	Member of the Panel appointed by the Italian Committee for the Evaluation of Research (CIVR) to review the output of the Italian research system in the period 2004-2008.
2010	Reviewer of proposals submitted under the FP7 "Ideas" Specific Programme of the European Research Council (ERC).
2011 –	Reviewer of proposals submitted to the National Science and Engineering Research Council (NSERC) of Canada, the United States National Science Foundation (NSF), the National Commission for Scientific and Technological Research of Chile (CONYCIT), and the United States – Israel Binational Research Foundation.
2012	Member of the Panel appointed by Italian National Research and University Evaluation Agency (ANVUR) to review the output of the Italian research system in the periods 2004-2010 and 2011-2014 (VQR).
2015	Member of the Panel appointed to review the proposals submitted to the University of Rome "Tor Vergata" under the Project "Uncovering Excellence"
2015 – 2019	Member of the Board of Directors of the European Center for Theoretical Studies in Nuclear Physics and Related Areas (ECT*), Trento, Italy
2019 –	Member of the Editorial Board of the open access, peer-reviewed journal

"Particles", published online quarterly by MDPI

2025 – Editor-in-Chief of the Section "Nuclear and Hadronic Theory" of the journal "Particles"

In addition to the above activities, I serve on a regular basis as a reviewer of manuscripts submitted for publication in leading Physics Journals, including Physical Review Letters, The Physical Review C, The Physical Review D, Nuclear Physics A, Physics Letters B, Physics Reports, The European Physical Journal A, The European Physical Journal C, Journal of Physics G, Annals of Physics and The Journal of Low Temperature Physics.

- **Memberships of scientific societies**

Italian Physical Society (SIF, since 1985)
European Physical Society (EPS, since 1985)
American Physical Society (APS, since 1992)

- **Major collaborations**

2007 – 2016 National Coordinator of the INFN Theory Collaboration MANYBODY. As of February, 2016, the Collaboration involved 18 researchers (11 tenured, 2 postdoctoral fellows, and 5 PhD students) from eight Departments.

2008 – 2013 Italian Spokesperson of a Collaboration between the University of Barcelona and the INFN groups of Roma and Catania, funded through an agreement between INFN and the Ministry for Science and Innovation of Spain (MICINN).

2014 – 2023 Co-spokesperson of experiment E12-14-012 at Jefferson Lab, Measurement of the Spectral Functions of ^{40}Ar and ^{48}Ti Through the (e, e' p) Reaction, approved by PAC42 in July 20214.

2023 - Co-spokesperson of experiment E12-24-013 at Jefferson Lab. Studying Λ Interactions in Nuclear Matter with the ^{208}Pb (e, e' K^+) $^{208}{}_{\Lambda}$Tl reaction, approved by PAC52 in July 2024. Data taking is expected to begin in 2027.

2025 - Co-author of a proposal to measure the Nucleon Axial-Vector Form Factor from the p($\vec{e}$, n)ν_e Reaction, submitted to Jefferson Lab PAC53 in May, 2025.

- **Selected Publications**

Below is a list of twelve representative papers published in peer-reviewed journals:

[1]. O. Benhar, A. Fabrocini, and S. Fantoni. *The nucleon spectral function in nuclear matter*. Nucl. Phys. A **505,** 267 (1989).

[2]. O. Benhar, A. Fabrocini, S. Fantoni, G.A. Miller, V.R. Pandharipande, and I. Sick. *Scattering of GeV electrons by nuclear matter*. Phys. Rev. C **44**, 2328 (1991).

[3]. O. Benhar, V.R. Pandharipande, and S.C. Pieper. *Electron scattering studies of correlations in nuclei*. Rev. Mod. Phys. **65**, 817 (1993).

[4]. O. Benhar, A. Fabrocini, S. Fantoni, and I. Sick. *Spectral function of finite nuclei and scattering of GeV electrons*. Nucl. Phys. A **579,** 493 (1994).

[5]. O, Benhar, V. Ferrari, and L. Gualtieri. *Gravitational-wave asteroseismology reexamined*. Phys. Rev. D **70**, 124015 (2004).

[6]. O. Benhar, N. Farina, H. Nakamura, M. Sakuda, and R. Seki. *Electron- and neutrino-nucleus scattering in the impulse approximation regime*. Phys. Rev. D **72,** 053005 (2005).

[7]. O. Benhar, D. Day, and I. Sick, *Inclusive quasielastic electron-nucleus scattering*. Rev. Mod. Phys. **80**, 189 (2008).

[8]. O. Benhar, P Coletti, and D. Meloni. *Electroweak nuclear response in the quasielastic regime*. Phys. Rev. Lett. **105**, 132301 (2010).
[9]. O. Benhar, P. Huber, C. Mariani, and D. Meloni, *Neutrino-Nucleus Interactions and the Determination of Oscillation parameters*. Phys. Rep. **700**, 1 (2017).
[10]. L. Gu*, et al*. (The Jefferson Lab Hall A Collaboration). *Measurement of the Ar (e, e' p) and Ti (e, e' p) Cross Sections in Jefferson Lab Hall A*. Phys. Rev. C **103**, 034604 (2021).
[11]. O. Benhar, A. Lovato, and G. Camelio, Astrophys. *Modelling Neutron Star Matter in the Age of Multimessenger Astrophysics*. Astrophys. J. 939, 52 (2022).
[12]. A. Sabatucci, O. Benhar, A. Maselli, and C. Pacilio, *Sensitivity of neutron-star observations to three-nucleon forces.* Phys. Rev. D **106**, 083010 (2022).

The full publication list and the bibliographic data are available from

https://inspirehep.net/literature?sort=mostrecent&size=25&page=1&q=a%20benhar%2Co&ui-citation-summary=true

- **Books**

2012 Luciano Maiani and Omar Benhar, *Relativistic Quantum Mechanics and Introduction to Quantum Field Theory*, 2nd Ed., Taylor & Francis, 2024.
2015 Nicola Cabibbo, Luciano Maiani, and Omar Benhar, *Introduction to Gauge Theories*, Taylor & Francis, 2nd Ed., Taylor & Francis, 2025.
2020 Omar Benhar and Stefano Fantoni, *Nuclear Matter Theory*, Taylor & Francis, 2020.
2023 Omar Benhar, *Structure and Dynamics of Compact Stars*, Springer, 2023.

- **Invited talks and lectures**

In the past decade, I have been invited to give a total of about 80 talks at many international Conferences and Workshops, as well as to deliver seminars and colloquia in leading scientific institutions, and to lecture at a number of International Schools in Europe, the United States and Asia.