

Curriculum Vitae Denis Parganlija

Name Denis Parganlija

Postal Address Institute for Theoretical Physics
Vienna University of Technology
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Date of birth 08 Feb 1983

Place of birth Zenica, Bosnia-Herzegovina

Nationality German

Main Scientific Interests

QCD via effective approaches (Linear Sigma Model) and from first principles/holography (Witten-Sakai-Sugimoto Model).

Meson spectroscopy: glueballs, quarkonia, tetraquarks, meson-meson bound states at zero and non-zero T and μ .

Physics of compact stars: superfluidity and modelling of QCD at intermediate densities.

Projects

since Mar 2014 Project co-author: Glueball Search in Holography and Phenomenology
Project number P26366, financed by the Austrian Science Fund FWF
Implemented at the Institute for Theoretical Physics,
Vienna University of Technology, Austria
(Project leader: A. Rebhan, Vienna University of Technology)
Project funds: cca. 320 000 EUR

Education and Academic Career

since Jan 2012 Research Fellow at Vienna University of Technology,
Institute for Theoretical Physics, Vienna, Austria

May 2012 PhD in Physics at Goethe University Frankfurt,
Institute for Theoretical Physics, Frankfurt/Main, Germany
Thesis title: *“Quarkonium Phenomenology in Vacuum”*
PhD exam score: summa cum laude
Thesis advisor: Dirk H. Rischke

Jan 2007 Diploma in Physics at Goethe University Frankfurt,
 Institute for Theoretical Physics, Frankfurt/Main, Germany
 Thesis title: “*Pion-Pion Scattering in a Gauged Linear Sigma Model
 with Chiral $U(2)_L \times U(2)_R$ Symmetry*”
 Diploma exam score: with distinction (1.0)
 Thesis advisor: Dirk H. Rischke

Invited University Lectures and Workshop Talks

Jul 2017 Justus Liebig University, Giessen/Germany
 Lecture title: *Glueballs: Theoretical Status and Experimental Search*

Oct 2016 Meeting of the Working Group on Theory of
 Hadronic Matter under Extreme Conditions
 Venue and date: Joint Institute for Nuclear Research (JINR),
 Dubna/Russia, 31. Oct - 3. Nov 2016
 Title of the talk: *Glueballs and Vector Mesons at NICA*

Oct 2015 Jan Kochanowski University, Kielce/Poland
 Invited lectures on the topic of glueballs:
Glueballs: an Unfulfilled Promise of the Strong Interaction?
 and
Scalar Glueball and the Excited Scalar Mesons

Feb 2015 Workshop on PANDA Physics Perspectives with Focus on
 Austrian/SMI Contributions
 Venue and date: Stefan Meyer Institute (SMI) of the
 Austrian Academy of Sciences,
 Vienna/Austria, 19. & 20.2.2015
 Title of the talk: *Scalar Glueball – the Status Quo and Proposals for Experiments*

Feb 2014 Burch University, Sarajevo/Bosnia-Herzegovina
 Lecture title: *Challenges of the Modern Elementary-Particle Physics*

Apr 2013 Jozef Stefan Institute, Ljubljana/Slovenia
 Lecture title: *Mysteries of Light Mesons*

Jan 2013 University of Graz/Austria
 Lecture title: *Mysteries of Light and Not-So-Light Scalar Mesons*

Awards

Oct 2012 Honourable Mention
Mpemba Competition of the UK Royal Society of Chemistry
 – *Why does hot water sometimes freeze faster than cold water?*

Oct 2008 – May 2012 PhD Scholarship
Polytechnic Society Foundation, Frankfurt/Germany
(*Stiftung Polytechnische Gesellschaft Frankfurt am Main*)

Jul 2004 – Jan 2007 Diploma Scholarship
Friedrich Ebert Foundation (Germany)

Student Mentoring

May 2016 – Apr 2017 Stephan Hübsch (bachelor student)
Project Work – Projektarbeit
Excited Quarkonia in the Extended Linear Sigma Model (eLSM)
(Vienna University of Technology)

Teaching Experience

since 2014 Lecturer
Quantum Chromodynamics II
(Vienna University of Technology)

2011 – 2012 Substituting Lecturer
Electrodynamics, Quantum Mechanics I and Statistical Mechanics
(Goethe University Frankfurt)

2007 – 2011 Organiser of Tutorial Courses
Mechanics I, Mechanics II, Electrodynamics and Quantum Mechanics I
(Goethe University Frankfurt)

2006 – 2007 Tutor
Excercises for the Lectures Mechanics I, Mechanics II and Electrodynamics
(Goethe University Frankfurt)

Organisation of Conferences and Workshops

Feb 2014 Excited QCD Winter Workshop 2014
Bjelasnica Mountain, Sarajevo, Bosnia-Herzegovina
<http://indico.cern.ch/e/exqcd2014>

Feb 2013 Excited QCD Winter Workshop 2013
Bjelasnica Mountain, Sarajevo, Bosnia-Herzegovina
<http://indico.cern.ch/event/exqcd2013>

Nov 2010 Lisbon-Frankfurt Miniworkshop on Finite-Temperature QCD
Instituto Superior Tecnico, Lisbon, Portugal
<http://nemea.ist.utl.pt/~ptqcd/FFMLXmnwork/>

Journal Referee

for Reviews of Modern Physics, Physical Review Letters, Physical Review D, Physical Review C and European Physical Journal A

Journal Publications

- D. Parganlija and F. Giacosa,
“Excited Scalar and Pseudoscalar Mesons in the Extended Linear Sigma Model,”
Eur. Phys. J. C **77**, no. 7, 450 (2017) [arXiv:1612.09218 [hep-ph]].
5 citations counted in INSPIRE as of 11 Oct 2017

- D. Parganlija,
“Glueballs and vector mesons at NICA,”
Invited contribution to the Topical Issue “Exploring strongly interacting matter at high densities – NICA White Paper”
(Editors: J. Aichelin, D. Blaschke, E. Bratkovskaya, V. Friese, M. Gazdzicki, J. Randrup, O. Rogachevsky, O. Teryaev and V. Toneev)
Eur. Phys. J. A **52**, no. 8, 229 (2016) [arXiv:1601.05328 [hep-ph]].
5 citations counted in INSPIRE as of 11 Oct 2017

- F. Br  nner, D. Parganlija and A. Rebhan,
“Glueball Decay Rates in the Witten-Sakai-Sugimoto Model,”
Phys. Rev. D **91**, no. 10, 106002 (2015) [arXiv:1501.07906 [hep-ph]]; Erratum: Phys. Rev. D **93**, 109903 (2016).
43 citations counted in INSPIRE as of 11 Oct 2017

- D. Parganlija, P. Kovacs, G. Wolf, F. Giacosa and D. H. Rischke,
“Meson vacuum phenomenology in a three-flavor linear sigma model with (axial-)vector mesons,”
Phys. Rev. D **87**, no. 1, 014011 (2013) [arXiv:1208.0585 [hep-ph]].
113 citations counted in INSPIRE as of 11 Oct 2017

- S. Janowski, D. Parganlija, F. Giacosa and D. H. Rischke,
“The Glueball in a Chiral Linear Sigma Model with Vector Mesons,”
Phys. Rev. D **84**, 054007 (2011) [arXiv:1103.3238 [hep-ph]].
80 citations counted in INSPIRE as of 11 Oct 2017

- D. Parganlija, F. Giacosa and D. H. Rischke,
“Vacuum Properties of Mesons in a Linear Sigma Model with Vector Mesons and Global Chiral Invariance,”
Phys. Rev. D **82**, 054024 (2010) [arXiv:1003.4934 [hep-ph]].
110 citations counted in INSPIRE as of 11 Oct 2017

Number of citations / number of published articles = 59.

Books: PhD Thesis and Proceedings Editorship

- D. Parganlija,
“Quarkonium Phenomenology in Vacuum,” (PhD Thesis)
urn:nbn:de:hebis:30:3-249891 [arXiv:1208.0204 [hep-ph]].
- P. Bicudo (ed.), F. Giacosa (ed.), M. Malek (ed.), M. Marinković (ed.) and D. Parganlija (ed.),
“Proceedings, 6th Workshop on Excited QCD 2014 : Sarajevo, Bosnia-Herzegovina, February 2-8, 2014,”
Acta Phys. Polon. Suppl. **7**, no. 3, pp.417 (2014).
- P. Bicudo (ed.), F. Giacosa (ed.), M. Malek (ed.) and D. Parganlija (ed.),
“Proceedings, 5th Workshop on Excited QCD 2013 : Sarajevo, Bosnia-Herzegovina, February 3-9, 2013,”
Acta Phys. Polon. Suppl. **6**, no. 3, pp.719 (2013).

Proceedings Contributions / Conference Participations of the Last Five Years

- D. Parganlija and F. Giacosa, “The $f_0(1790)$ and $a_0(1950)$ Resonances as Excited $\bar{q}q$ States in the Extended Linear Sigma Model”
arXiv:1709.02181 [hep-ph].
Excited QCD Workshop 2017, Sintra, Portugal, May 2017.
- D. Parganlija and F. Giacosa,
“Excited Scalar Mesons and the Search for Glueballs”
arXiv:1606.05533 [hep-ph].
12th International Conference on Low Energy Antiproton Physics (LEAP), Kanazawa, Japan, March 2016.
- A. Rebhan, F. Brünner and D. Parganlija,
“Glueball decay patterns in top-down holographic QCD”
PoS EPS -**HEP2015**, 421 (2015) [arXiv:1511.01391 [hep-ph]].
The European Physical Society Conference on High Energy Physics (EPS-HEP 2015), Vienna, Austria, July 2015.
- D. Parganlija,
“Tensor Glueball in a Top-Down Holographic Approach to QCD,”
Acta Phys. Polon. Suppl. **8**, no. 2, 289 (2015) [arXiv:1506.03000 [hep-ph]].
Excited QCD Workshop 2015, Tatranska Lomnica, Slovakia, March 2015.
- D. Parganlija,
“Scalar Glueball in a Top-Down Holographic Approach to QCD,”
Acta Phys. Polon. Suppl. **8**, no. 1, 219 (2015) [arXiv:1503.00550 [hep-ph]].
Workshop on Unquenched Hadron Spectroscopy: Non-Perturbative Models and Methods of QCD vs. Experiment at the occasion of Eef van Beveren’s 70th birthday (EEF 70), Coimbra, Portugal, September 2014.

- F. Br  nner, D. Parganlija and A. Rebhan,
 “Top-down Holographic Glueball Decay Rates”
 AIP Conf. Proc. **1701**, 090007 (2016) [arXiv:1502.00456 [hep-ph]].
XIth Conference Quark Confinement and the Hadron Spectrum (Confinement XI), St. Petersburg, Russia, September 2014.
- F. Br  nner, D. Parganlija and A. Rebhan,
 “Holographic Glueball Decay,”
 Acta Phys. Polon. Supp. **7**, no. 3, 533 (2014) [arXiv:1407.6914 [hep-ph]].
Excited QCD Workshop 2014, Sarajevo, Bosnia-Herzegovina, February 2014.
- D. Parganlija,
 “Mesons, PANDA and the scalar glueball,”
 J. Phys. Conf. Ser. **503**, 012010 (2014) [arXiv:1312.2830 [hep-ph]].
Workshop for young scientists with research interests focused on physics at FAIR (FAIR-NESS 13), Berlin, Germany, September 2013.
- D. Parganlija, P. Kovacs, G. Wolf, F. Giacosa and D. H. Rischke,
 “Eta, Eta’ and eLSM,”
 PoS ConfinementX , 117 (2012) [arXiv:1301.3478 [hep-ph]].
Quark Confinement and the Hadron Spectrum X (Confinement X), Munich, Germany, October 2012.
- D. Parganlija,
 “Scalar Mesons and FAIR,”
 J. Phys. Conf. Ser. **426**, 012019 (2013) [arXiv:1211.4804 [hep-ph]].
Workshop for young scientists with research interests focused on physics at FAIR (FAIR-NESS 12), Hersonissos, Greece, September 2012.
- F. Giacosa, D. Parganlija, P. Kovacs and G. Wolf,
 “Phenomenology of light mesons within a chiral approach,”
 EPJ Web Conf. **37**, 08006 (2012) [arXiv:1208.6202 [hep-ph]].
12th International Workshop on Meson Production, Properties and Interaction (MESON 2012), Cracow, Poland, June 2012.
- D. Parganlija, P. Kovacs, G. Wolf, F. Giacosa and D. H. Rischke,
 “Phenomenology of Axial-Vector Mesons from an Extended Linear Sigma Model,”
 Acta Phys. Polon. Supp. **5**, 1109 (2012) [arXiv:1208.2054 [hep-ph]].
Excited QCD Workshop 2012, Peniche, Portugal, May 2012.
- D. Parganlija, P. Kovacs, G. .Wolf, F. Giacosa and D. H. Rischke,
 “Scalar mesons in a linear sigma model with (axial-)vector mesons,”
 AIP Conf. Proc. **1520**, 226 (2013) [arXiv:1208.5611 [hep-ph]].
12th International Workshop on Hadron Physics, Bento Gon  alves, Rio Grande do Sul, Brazil, April 2012.
- D. Parganlija,
 “The quest for light scalar quarkonia from an $N(f) = 3$ linear sigma model with vectors and axial-vectors,”
 PoS EPS -**HEP2011**, 454 (2011).

The European Physical Society Conference on High Energy Physics (EPS-HEP 2011), Grenoble, France, July 2011.