

Thiago R. Araujo

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Institute for Theoretical Physics, University of Bern
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PERSONAL

- **Birth:** 29th July, 1987
- **Nationality:** Brazilian
- **Languages:** Portuguese (native), English (fluent), Spanish (basic)
- **Hyperlinks:** [Inspire-hep](#), [arXiv](#), [Orcid](#), [ResearcherID](#), [Scopus](#), [Google Scholar](#)



RESEARCH INTERESTS

I am a physicist working on mathematical aspects of quantum field theories. More specifically, my research is focused on the following topics:

- **2018 - Present:** *Integrability in gauge theories and in statistical physics*
- **2016 - 2018:** *Flat space holography, integrable deformations of supergravity*
- **2010 - 2017:** *Integrable and conformal field theories, AdS/CFT, string theory*

EDUCATION

Ph.D. in Physics **2012 - 2016**
IFT-UNESP/ICTP-SAIFR, São Paulo, Brazil

Thesis: “*Some aspects of abelian and nonabelian T-duality and the gauge/gravity correspondence*”
Defense: Feb/16/2016
Advisor: Dr. Horatiu Stefan Nastase

Master in Physics **2010 - 2012**
IFT-UNESP/ICTP-SAIFR, São Paulo, Brazil

Thesis: “*On the Bäcklund and Darboux transformations for the Tzitzeica model*”
Defense: Feb/27/2012
Advisor: Dr. Jose Francisco Gomes

B.S. in Physics **2006 - 2009**
UFS, Federal University of Sergipe, Aracaju, Brazil

Thesis: “*The Quantum Deformed Kink*” (in Portuguese)
Defense: Dec/14/2009
Advisor: Dr. Stoian Ivanov Zlatev

EMPLOYMENTS

Advanced Postdoc **Sep 2019 - Ongoing**

AEC-UNIBE, Bern, Switzerland

“*Integrable aspects of string theory*”

Swiss National Science Foundation, grant number PP00P2_183718/1; PI: Dr. Susanne Reffert

Postdoc

Sep 2016 - Aug 2019

APCTP-POSTECH, Pohang, South Korea

“Generalized supergravity & noncommutative field theory”

Pohang City Independent Junior Research Groups Program; PI: Dr. Eoin Ó Colgáin

Postdoc

Mar 2016 - Aug 2016

IFT-UNESP/ICTP-SAIFR, São Paulo, Brazil

“Integrability and holography in massive type IIA Supergravity”

Recém Doutor program

Teaching Assistant

Jun 2007 - Oct 2008

UFS, Federal University of Sergipe, Aracaju, Brazil

- Ordinary Differential Equations (Prof. S. I. Zlatev)

- Classical Mechanics (Prof. F. M. P. Chaves)

- Mathematical Physics (Prof. F. M. P. Chaves)

AWARDS & GRANTS

- Programa Fondecyt Fellowship 2019, Chile. Competitive process, position 14 of 73 projects considered. Process Number 3190009. I declined the offer to join the group of Susanne Reffert at University of Bern.
- Recém Doutor program 2016, Brazil; Competitive process for young Ph.D.
- Best student of the physics department in 2007, UFS.

PREPRINTS

1. Towards Yang-Baxter integrability of quantum crystal melting: From Kagome lattice to vertex models
Thiago Araujo; [arXiv:2009.06812](#)
2. Quantum crystals, Kagome lattice and plane partitions fermion-boson duality
Thiago Araujo, Domenico Orlando, Susanne Reffert; [arXiv:2005.09103](#)

PUBLISHED PAPERS

1. Nonlocal charges from marginal deformations of 2D CFTs: Holographic $T\bar{T}$ & $J\bar{T}$ and Yang-Baxter deformations
Thiago Araujo
Phys. Rev. D 101 (2020), 025008; [arXiv:1909.08149](#)
2. Holographic integration of $T\bar{T}$ and $J\bar{T}$ via $O(d, d)$
Thiago Araujo, Eoin Ó Colgáin, Yuho Sakatani, M.M. Sheikh-Jabbari, Hossein Yavartanoo
JHEP 1903 (2019) 168; [arXiv:1811.03050](#)
3. Embedding the modified CYBE in Supergravity
Thiago Araujo, Eoin Ó Colgáin, Hossein Yavartanoo
Eur.Phys.J. C 78 (2018) no.10, 854; [arXiv:1806.02602](#)
4. Remarks on BMS(3) invariant field theories: correlation functions and nonunitary CFTs
Thiago Araujo
Phys. Rev. D 98 (2018), 026014; [arXiv:1802.06559](#)
5. I in generalized supergravity
T. Araujo, E. Ó Colgáin, J. Sakamoto, M.M. Sheikh-Jabbari, K. Yoshida
Eur.Phys.J. C 77 (2017) no.11, 739; [arXiv:1708.03163](#)
6. Penrose limits and spin chains in the GJV/CS-SYM duality
Thiago Araujo, Georgios Itsios, Horatiu Nastase, Eoin Ó Colgáin
JHEP 1712 (2017) 137; [arXiv:1706.02711](#)

7. **Conformal twists, Yang-Baxter σ -models & holographic noncommutativity**
T. Araujo, I. Bakhmatov, E. Ó Colgáin, J. Sakamoto, M.M. Sheikh-Jabbari, K. Yoshida
Journal of Physics A: Mathematical and Theoretical
J.Phys. A51 (2018) no.23, 235401 (Highlights of 2018); arXiv:1705.02063
8. **Yang-Baxter σ -models, conformal twists, and noncommutative Yang-Mills theory**
T. Araujo, I. Bakhmatov, E. Ó Colgáin, J. Sakamoto, M.M. Sheikh-Jabbari, K. Yoshida
Phys.Rev. D95 (2017) no.10, 105006; arXiv:1702.02861
9. **Observables in the Guarino-Jafferis-Varela/CS-SYM duality**
Thiago R. Araujo, Horatiu Nastase
JHEP 1707 (2017) 020; arXiv:1609.08008
10. **Revisiting Wilson loops for nonrelativistic backgrounds**
Thiago R. Araujo
Phys.Rev. D92 (2015) no.12, 126007; arXiv:1509.02011
11. **Non-Abelian T-duality for nonrelativistic holographic duals**
Thiago R. Araujo, Horatiu Nastase
JHEP 1511 (2015) 203; arXiv:1508.06568
12. **N=1 SUSY backgrounds with an AdS factor from non-Abelian T duality**
Thiago R. Araujo, Horatiu Nastase
Phys.Rev. D91 (2015) no.12, 126015; arXiv:1503.00553
13. **Comments on the T-dual of the gravity dual of D5-branes on S^3**
Thiago R. Araujo, Horatiu Nastase
JHEP 1504 (2015) 081; arXiv:1409.7333
14. **Type-II Bäcklund Transformations via Gauge Transformations**
A.R. Aguirre, T.R. Araujo, J.F. Gomes, A.H. Zimerman
JHEP 1112 (2011) 056; arXiv:1110.1589
15. **Quantum Corrections to the Mass of the Deformed Kink (in Portuguese)**
T. R. Araujo, Stoian I. Zlatev
Scientia Plena 5, 114804, 2009.

SELECTED PRESENTATIONS & VISITS

Presentations

- **Dec 2019:** “Disorder operators from Marginal deformations of 2D CFTs”, *Integrable effective field theories and their holographic descriptions*, Galileo Galilei Institute, Florence, Italy
- **Sep 2019:** “Nonlocal charges from marginal deformations of 2D CFTs”, *SwissMap General Meeting* Villar-sur-Ollon, Switzerland
- **Dec 2018:** “Integrable Deformations in Supergravity and Conformal Field Theories” KIAS, Seoul, South Korea
- **Nov 2018:** Minicourse of 12 hours on “2D Conformal Field Theories and Integrable Models” DFI-UFS, Aracaju, Brazil
- **Nov 2018:** “ $T\bar{T}$ -deformations: Integrable Deformations in Supergravity and Conformal Field Theories” IIP, Natal, Brazil
- **Jul 2018:** “Integrable structures in string theory”, *Strings, Branes and Gauge Theories* APCTP, Pohang, South Korea
- **Sep 2017:** “Yang-Baxter deformations & Noncommutative Field Theories”, *KIAS-YITP Joint Workshop 2017 “Strings, Gravity and Cosmology”*, (Poster) Kyoto University and Yukawa Institute, Kyoto, Japan
- **Aug 2017:** “Penrose Limits & Spin Chains in Massive type IIA Supergravity”, *Geometry and Holography for Quantum Criticality* APCTP, Pohang, South Korea
- **Aug 2017:** “Yang-Baxter deformations & Noncommutative Field Theories”, *International Workshop for String Theory and Cosmology* APCTP, Busan, South Korea

- **Feb 2017:** “Yang-Baxter sigma models, conformal twists & Noncommutative Yang Mills”, *Workshop on Fields, Strings and Gravity* KIAS, Seoul, South Korea
- **Dec 2016:** “Comments on AdS(4)/CFT(3)”, *Workshop on Frontiers of Physics: 10 Perspectives on Particle Physics* APCTP, Pohang, South Korea
- **Dec 2014:** “New N=1 Backgrounds with AdS Factors”, *Frontiers of the AdS-CMT Correspondence*, (Poster), University of Cape Town, Cape Town, South Africa

Visits

- **13/Nov/2018 – 30/Nov/2018:** Department of Physics - UFS , Aracaju, Brazil
- **05/Nov/2018 – 12/Nov/2018:** Institute International of Physics - IIP, Natal, Brazil
- **07/Nov/2017 – 21/Nov/2017:** Institut des Hautes Etudes Scientifiques - IHES, Bures-Sur-Yvette, France
- **03/Sep/2017 – 23/Sep/2017:** Kyoto University & Yukawa Institute, Kyoto, Japan
- **24/Mar/2015 – 03/Apr/2015:** International Centre for Theoretical Physics, Trieste, Italy

OTHER ACTIVITIES & OUTREACH

- 2018 - Committee member for PHD defense: *Hector Arturo Benitez Del Aguilla*, USP, SP, Brazil.
- 2017 - 2018 - Occasional writer for the “A Ciencia Explica” and “Portal Deviante” websites.
- 2011 - Event organization - XXXIV Paulo Leal Ferreira Conference at IFT-UNESP, São Paulo-SP, Brazil. October 19-21

REFERENCES

Horatiu Stefan Nastase
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