Thaís Victa Trevisan

**PERSONAL INFORMATION**

**Work Address:**
Department of Physics and Astronomy  
Iowa State University  
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**Google Scholar**

**PROFESSIONAL EXPERIENCE**

| Postdoctoral researcher | Ames, Iowa, USA | October, 2019-Present |
|-------------------------|-----------------|------------------------|
| Affiliation: Iowa State University and Ames Laboratory |
| Supervisor: Peter P. Orth |

**EDUCATION**

| University of Campinas | Campinas, São Paulo, Brazil |
|------------------------|-----------------------------|
| **Ph.D. in Condensed Matter Theory** | March, 2015-September, 2019 |
| • Thesis title: Exotic Phenomena in Low-Dimensional Systems |
| • Advisor: Prof. Amir O. Caldeira |

| University of Minnesota | Minneapolis, MN, USA |
|-------------------------|----------------------|
| **Fapesp BEPE Graduate Student Research Fellowship** | October, 2016-September, 2017 |
| • Supervisor: Prof. Rafael M. Fernandes |

| University of Campinas | Campinas, São Paulo, Brazil |
|------------------------|-----------------------------|
| **Master of Physics** | March, 2013-June, 2015 |
| • Master thesis title: Current-carrying states in simple aromatic molecules |
| • Advisor: Prof. Amir O. Caldeira |

| University of Campinas | Campinas, São Paulo, Brazil |
|------------------------|-----------------------------|
| **Bachelor in Physics** | March, 2009-December, 2012 |

**PUBLICATIONS**

1. Thaís V. Trevisan, Pablo Villar Arribi, Olle Heinonen, Robert-Jan Slager, Peter P. Orth  
Title: Bicircular Light Floquet Engineering of Magnetic Symmetry and Topology and Its Application to the Dirac Semimetal Cd$_3$As$_2$  
*Phys. Rev. Lett.* **128**, 066602 (2022)

2. Na Hyun Jo, Yun Wu, Thaís V. Trevisan, Lin-Lin Wang, Kyungchan Lee, Brinda Kuthanazhi, Benjamin Schrunki, S. L. Bud’ko, P. C. Canfield, P. P. Orth, Adam Kaminski  
Title: Visualizing band selective enhancement of quasiparticle lifetime in a metallic ferromagnet  
*Nature Communications*, **12**, 7169 (2021)
Kyungchan Lee, Gunnar F. Lange, Lin-Lin Wang, Brinda Kuthanazhi, **Thais V. Trevisan**, Na Hyun Jo, Benjamin Schrunk, Peter P. Orth, Robert-Jan Slager, Paul C. Canfield, Adam Kaminski

3. Title: Discovery of a weak topological insulating state and van Hove singularity in triclinic RhBi$_2$
   *Nature Communications*, **12**, 1855 (2021)

S. X. M. Riberolles, **T. V. Trevisan**, B. Kuthanazhi, T. W. Heitmann, F. Ye, D. C. Johnston, S. L. Bud’ko, D. H. Ryan, P. C. Canfield, A. Kreyssig, A. Vishwanath, R. J. McQueeney, L. -L. Wang, P. P. Orth, B. G. Ueland

4. Title: Magnetic crystalline-symmetry-protected axion electrodynamics and field-tunable unpinned Dirac cones in EuIn$_2$As$_2$
   *Nature Communications*, **12**, 999 (2021)

**Thais V. Trevisan**, Gustavo M. Monteiro and Amir O. Caldeira

5. Title: Enhancement of diamagnetism by momentum-momentum interaction: application to benzene
   *Phys. Rev. B* **103**, L180402 (2021)

**T. V. Trevisan**, Gustavo M. Monteiro and A. O. Caldeira

6. Title: Effective momentum-momentum coupling in a correlated electronic system
   *Phys. Rev. B* **102**, 125128 (2020)

Maria N. Gastiasoro, **Thais V. Trevisan** and Rafael M. Fernandes

7. Title: Anisotropic superconductivity mediated by ferroelectric fluctuations in cubic systems with spin-orbit coupling
   *Phys. Rev. B* **101**, 174501 (2020)

**Thais V. Trevisan**, Michael Schütt and Rafael M. Fernandes

8. Title: Unconventional multi-band superconductivity in bulk SrTiO$_3$ and LaAlO$_3$/SrTiO$_3$ interfaces
   *Phys. Rev. Lett.* **121**, 127002 (2018)

**Thais V. Trevisan**, Michael Schütt and Rafael M. Fernandes

9. Title: Impact of disorder on the superconducting transition temperature near a Lifshitz transition
   *Phys. Rev. B* **98**, 094514 (2018)

**SUBMITTED MANUSCRIPTS**

Noah F. Berthusen, **Thais V. Trevisan**, Thomas Iadecola, Peter P. Orth

10. Title: Quantum dynamics simulations beyond the coherence time on NISQ hardware by variational Trotter compression
    arXiv:2112.12654 (2021)

A. Alexandradinata *et al.*

11. Title: The Future of the Correlated Electron Problem
    arXiv:2010.00584 (2020), submitted to Reviews of Modern Physics

**RESEARCH INTERESTS**

- Topological phases of matter
- Floquet engineering
- Unconventional superconductivity
- Disordered superconductors
- Non-linear responses of many-body systems
- Strongly correlated quantum materials
SKILLS

Analytical methods:
• Floquet theory
• Keldysh formalism
• Born approximation
• Theory of unconventional superconductors
• Group theory

Numerical methods:
• Exact diagonalization of interacting electron systems

Programming:
• Mathematica
• Matlab
• Python

AWARDS AND SCHOLARSHIPS

CATS Research and Center Involvement Award
Award within the Energy Frontier Research Center for Advancement of Topological Semimetals of the US Department of Energy, Ames Laboratory
Ames, USA

Postdoctoral Scholar Research Excellence Award
Award within Iowa State University
Ames, USA

CATS Collaboration Award
Award within the Energy Frontier Research Center for Advancement of Topological Semimetals of the US Department of Energy, Ames Laboratory
Ames, USA

Fapesp BEPE Graduate Student Research Fellowship
PhD, Research internships Abroad, 2016/12874-3
Campinas, Brazil

Fapesp Graduate Fellowship (PhD)
Project number 2015/21349-7
Campinas, Brazil

CNPq Graduate Fellowship (PhD)
Project number 141176/2015-6
Campinas, Brazil

CNPq Graduate Fellowship (Master Degree)
Project number 131534/2013-0
Campinas, Brazil

Fapesp Undergraduate Fellowship
Project number 2011/23773-0
Campinas, Brazil

TEACHING EXPERIENCE
Teaching Assistant
February 2016 - July 2016
• Assistantship on undergraduate Quantum Mechanics Course.

INVITED TALKS

University of Minnesota
January 19th, 2021
Minneapolis, MN, USA
• Talk title: Tuning magnetic symmetries and topology with bicircular light.

International Institute of Physics virtual seminars, UFRN
October 23th, 2020
Online
• Talk title: Manipulating symmetry and topology using light (available on youtube in Portuguese).

TALKS, POSTER PRESENTATIONS AND CONFERENCES ATTENDED

2021 EFRC-Hub-CMS-CCS Principal Investigators’ Meeting
October 18th-19th, 2021
Online
• Poster title: Magnetic axion insulator and exotic surface states in EuIn$_2$As$_2$

Correlations in Novel Quantum Materials
June 9th-11th, 2021
Online
Max Planck Institute for Solid State Research, Stuttgart, Germany.
• Poster title: Axion insulator and exotic surface states protected by magnetic crystalline symmetries in EuIn$_2$As$_2$

American Physical Society March Meeting
March 15th-19th, 2021
Online
• Talk title: Controlling symmetry and topology via bicircular light: application to Cd$_3$As$_2$

CATS 2020 annual meeting
September 28th-October 2nd, 2020
Online
• Talk title: Controlling symmetry and topology using bicircular light

Microscopics of Superconductivity in Perovskite Oxides: Challenges, Hurdles and Enigmas (MISPOCHE)
July 20th-23th, 2020
Online

The Future of the Correlated Electron Problem Workshop
January 27th-29th 2020
Baltimore, MD, USA

Brazilian Physical Society Autumn meeting
May 06th-11th, 2018
Foz do Iguaçu, Paraná, Brazil
• Talk title: Suppression of superconductivity across the Lifshitz transition in bulk SrTiO$_3$ and LaAlO$_3$/SrTiO$_3$ interfaces

American Physical Society March Meeting
05-09 March, 2018
Los Angeles, California, USA
• Talk title: Suppression of superconductivity across the Lifshitz transition in bulk SrTiO$_3$ and LaAlO$_3$/SrTiO$_3$ interfaces

Advanced School and Workshop on Correlations in Electron Systems - from Quantum Criticality to Topology
6-17 August, 2018
Trieste, Italy
• Poster title: Impact of disorder on the superconducting transition temperature near a Lifshitz transition: application to SrTiO₃

_School of Unconventional Superconductivity: Experiment and Theory_
7-19 August, 2017
Cargese, Corsica, France
• Poster title: Impact of disorder on the superconducting transition temperature near a Lifshitz transition
• Contributed talk: Impact of disorder on the superconducting transition temperature near a Lifshitz transition

_Gordon Research Conferences_
04-09 June, 2017
Waterville Valley, New Hampshire, USA
• Poster title: Impact of disorder on the superconducting transition temperature near a Lifshitz transition

_XXXVII Paulo Leal Ferreira Congress (CPLF)_
01-03 October, 2014
São Paulo, Brazil
• Poster title: Current-carrying states in simple molecules

_Gleb Wataghin Institute of Physics winter school- Emergent magnetism and superconductivity_
20-31 July, 2013
Campinas, São Paulo, Brazil

_Advanced school on quantum foundations and open quantum systems_
16-28 July, 2012
João Pessoa, Paraíba, Brazil

OUTREACH ACTIVITIES

_Science Girl. Girl Science_
Federal University of ABC (UFABC), Santo André, São Paulo, Brazil
September-October 2021
Event aimed at girls at middle school consisting of lectures and practical activities carried out by Federal University of ABC. One of the goals is to show the role of women scientists in different areas of activity (webpage).
• Invited scientist.
Talk: What is physics? (available on youtube in Portuguese).

_Go Further Girls STEM Conference_
Iowa State University, Ames, IA, USA
2020-present
Program for Women in Science and Engineering
• Facilitator in the cryptography workshop session Crack the secret pirate code (organized by Prof. Peter P. Orth).
• Facilitator in session Quantum tic-tac-toe (organized by Prof. Thomas Iadecola and Prof. Peter P. Orth).

_Physics During Vacations_
University of Campinas, Campinas, Brazil
July 2013
Program organized by Gleb Wataghin Institute of Physics, University of Campinas, consists of advanced physics lectures aimed for high-school students.
• Lectures: Particle-wave duality

PROFESSIONAL SERVICES

• Peer reviewing for scientific journal npj Quantum Materials.
• Peer reviewing for scientific journal Brazilian Journal of Physics.
• CATS representative to the BES Early Career Network.