ROBERT ROSATI

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EMPLOYMENT

NASA – Marshall Space Flight Center *2022 - present*

NASA Postdoctoral Program Fellow, LISA and Stochastic Gravitational Wave Backgrounds
Supervisor: Tyson Littenberg

EDUCATION

The University of Texas at Austin *2014 - 2021*

PhD in Physics, Advisor: Sonia Paban (GPA 3.87)

The University of Alabama *2010 - 2014*

BEng in Electrical Engineering, double major in Physics (Summa Cum Laude)

TEACHING EXPERIENCE

UT-Austin *2014-2021*

- TA for Graduate Quantum II - 1 sem. (Weinberg)
- AI for Physical Science 303 - 3 years (Instructor of record for the class)
- TA for Astrophysics - 1 year (Weinberg)
- TA for Junior-level Physics major lab - 1 sem. (Sitz)
- TA for Electronics Techniques, upper level electronics lab - 2 years (Erskine)

SELECTED TALKS

Amaldi 15, *Online* *July 2023*

Recovering Primordial Stochastic Gravitational Wave Backgrounds in the LISA Global Fit

LISA Cosmology Working Group Meeting, *Stavanger, Norway* *June 2023*

Recovering Primordial Stochastic Gravitational Wave Backgrounds in the LISA Global Fit

Nordic HET Seminar, *Online Invited talk* *December 2022*

Rapid-turn inflation in supergravity is rare and tachyonic

APS April Meeting, New York, NY *April 2022*

Signatures of Multi-field Inflation in LISA

String Pheno Seminar, *Seminar Series on String Phenomenology* *October 2021*

Rapid-turn inflation in supergravity is rare and tachyonic

Parallel Talks, *JuliaCon 2020*

Simulating the Early Universe with `Inflation.jl` *July 2020*

`SymbolicTensors.jl` – high-level tensor manipulation in Julia *July 2020*

Theory Seminar, *The University of Groeningen*

Multi-field Inflation in High-Slope Potentials *July 2019*

String Phenomenology Conference, *CERN*

Multi-field Inflation in High-Slope Potentials *June 2019*

GRC: String Theory and Cosmology, *Gordon Research Conference*

Multi-field Inflation in High-Slope Potentials *June 2019*

Cosmology Summer School, *ICTP, Trieste*

Inflation in Modified Dyson Brownian Motion Potentials *June 2018*

SELECTED SOFTWARE

`Inflation.jl` – a Julia package for many-field inflationary simulations using the transport method. https://github.com/rjrosati/Inflation.jl

`SymbolicTensors.jl` – a Julia package for computer algebra of Einstein-notation tensor expressions. https://github.com/rjrosati/SymbolicTensors.jl

Other expertise in: data analysis in Python, high-performance computing in C/C++ and Julia

OUTREACH

LISA Data Analysis Summer Workshop – 2023. Traveled to Vanderbilt to help organize a summer school for disadvantaged students from Fisk University

Astronomy on Tap talk – 2017. Public lecture about cosmic inflation.

Girl Day – 2017-2019. Volunteer for a yearly UT event focused on exposing girls to STEM.

PUBLICATIONS

[1] P. Christodoulidis, E. Sfakianakis and R. Rosati, *Predictivity in multi-field models with non-minimal couplings*, *in prep* (2024) .

[2] LISA Cosmology Working Group collaboration, *Reconstruction of the Primordial Powerspectrum from Scalar-induced Gravitational Waves*, *in prep* (2024) .

[3] R. Rosati and T. Littenberg, *Prototype Stochastic Gravitational Wave Background Recovery in the LISA Global Fit*, *in prep* (2024) .

[4] V. Aragam, S. Paban and R. Rosati, *Primordial Stochastic Gravitational Wave Backgrounds from a Sharp Feature in Three-field Inflation II: The Inflationary Era*, 2409.09023.

[5] V. Aragam, S. Paban and R. Rosati, *Primordial stochastic gravitational wave backgrounds from a sharp feature in three-field inflation. Part I. The radiation era*, *JCAP* **11** (2023) 014 [2304.00065].

[6] P. Christodoulidis and R. Rosati, *(Slow-)twisting inflationary attractors*, *JCAP* **09** (2023) 034 [2210.14900].

[7] V. Aragam, R. Chiovoloni, S. Paban, R. Rosati and I. Zavala, *Rapid-turn inflation in supergravity is rare and tachyonic*, *JCAP* **03** (2022) 002 [2110.05516].

[8] V. Aragam, S. Paban and R. Rosati, *The Multi-Field, Rapid-Turn Inflationary Solution*, *JHEP* **03** (2021) 009 [2010.15933].

[9] R. Rosati, *Inflation.jl – A Julia package for numerical evaluation of cosmic inflation models using the transport method*, July, 2020. 10.5281/zenodo.4708348.

[10] P. Christodoulidis, D. Roest and R. Rosati, *Many-field Inflation: Universality or Prior Dependence?*, *JCAP* **04** (2020) 021 [1907.08095].

[11] V. Aragam, S. Paban and R. Rosati, *Multi-field Inflation in High-Slope Potentials*, *JCAP* **04** (2020) 022 [1905.07495].

[12] S. Paban and R. Rosati, *Inflation in Multi-field Modified DBM Potentials*, *JCAP* **1809** (2018) 042 [1807.07654].

[13] P. B. Visscher, K. Munira and R. J. Rosati, *Instability Mechanism for STT-MRAM switching*, 1604.03992.

HONORS AND AWARDS

CNS Ongoing Graduate Student Summer Fellowship	*2019,2020*
Randall Undergraduate Research Award	*2014*
UA Electrical Engineering Distinguished Senior	*2014*
National Merit Scholarship	*2010*

ACTIVITIES

Research Assistant for UT Theory Group	*2016-2021*
Software Consultant for ProView Optics, LLC	*June 2015*
Research Assistant, Center for Materials for Information Technology at UA	*2012-2014*
Reservoir Management Intern at US Army Corps of Engineers	*Summers 2010-2012*
Eagle Scout	*2009*