Program

14 July 2025 to 1 August 2025



Windows into New Physics in the Sky

MITP - Mainz Institute for Theoretical Physics, Johannes Gutenberg University Mainz, 2413/2-430 - MITP Seminar Room Staudingerweg 9 / 2nd floor, 55128 Mainz

Table of contents

Monday 14 Jul 1

| Coffee break | 1 |
|------------------------------------|---|
| Welcome | 1 |
| High-frequency Gravitational Waves | 1 |
| Coffee break | 1 |
| Introduction session | 1 |

2

Tuesday 15 Jul

| The nuclear clocks | 2 |
|---|---|
| Coffee break | 2 |
| Generic isocurvature fluctuations of scalar dark matter | 2 |
| Lunch break | 2 |
| Coffee break | 2 |

Wednesday 16 Jul

| What new physics can we learn from JWST? | 3 |
|--|---|
| Coffee break | 3 |
| Exploring the epoch of helium reionization with kSZ tomography | 3 |
| Lunch break | 3 |
| Coffee break | 3 |

Thursday 17 Jul

| BBN bounds on lepton flavour asymmetries | 4 |
|--|---|
| Coffee break | 4 |
| Did IceCube detect DM around blazars? | 4 |
| Lunch break | 4 |
| Coffee break | 4 |

4

Friday 18 Jul

| Open string axiverse | 5 |
|----------------------|---|
| Coffee break | 5 |
| ТВА | 5 |
| Lunch break | 5 |
| Coffee break | 5 |

Monday 21 Jul

| Coffee break | 6 |
|-------------------------------|---|
| Welcome | 6 |
| NuSTAR as an axion helioscope | 6 |
| Coffee break | 6 |
| | |



Tuesday 22 Jul

| Supercooling in confining gauge theories | 7 |
|--|---|
| Coffee break | 7 |
| Confining Sectors in the Early Universe | 7 |
| Lunch break | 7 |
| Coffee break | 7 |

Wednesday 23 Jul 8

| Observable CMB B-Modes from Cosmological Phase Transitions (and Beyond) | 8 |
|---|---|
| Coffee break | 8 |
| Hunting axions with the James Webb Space Telescope | 8 |
| Lunch break | 8 |
| Coffee break | 8 |

Thursday 24 Jul

| ТВА | 9 |
|--------------|---|
| Coffee break | 9 |
| ТВА | 9 |
| Lunch break | 9 |
| Coffee break | 9 |

Friday 25 Jul 10

| The First 3 Minutes in a Few Seconds (or Less) | 10 |
|--|----|
| Coffee break | 10 |
| The bearable inhomogeneity of the baryon asymmetry | 10 |
| Lunch break | 10 |
| Coffee break | 10 |

Monday 28 Jul 11

Coffee break

| Welcome | 11 |
|----------------------|----|
| ТВА | 11 |
| Coffee break | 11 |
| Introduction session | 11 |

Tuesday 29 Jul 12

| ТВА | 12 |
|--------------|----|
| Coffee break | 12 |
| ТВА | 12 |
| Lunch break | 12 |
| ТВА | 12 |
| Coffee break | 12 |

11

Wednesday 30 Jul 13

TRA

| ТВА | 13 |
|------------------------------------|----|
| Coffee break | 13 |
| ТВА | 13 |
| Lunch break | 13 |
| Spin-dependent Exotic Interactions | 13 |
| Coffee break | 13 |

14 Thursday 31 Jul

| ТВА | 14 |
|-----------------|----|
| Coffee break | 14 |
| ТВА | 14 |
| Lunch break | 14 |
| Coffee break | 14 |
| 15 Friday 1 Aug | |
| Coffee breek | |

| Coffee break | 15 |
|--------------|----|
| Lunch break | 15 |
| Coffee break | 15 |

Monday 14 July

| 10:00 | Coffee break Break |
|-------|------------------------------------|
| 13:45 | Welcome |
| 14:00 | Contribution |
| 14:00 | High-frequency Gravitational Waves |
| 14:45 | Contribution Speaker: Nick Rodd |
| 14:45 | Coffee break |
| 15:15 | Break |
| 15:15 | Introduction session |
| 16:30 | Contribution |

Tuesday 15 July

| 10:00 | The nuclear clocks |
|-------|---|
| 10:45 | Contribution Speaker: Wolfram Ratzinger |
| 10:45 | Coffee break |
| 11:15 | Break |
| 11:15 | Generic isocurvature fluctuations of scalar dark matter |
| 12:00 | Contribution Speaker: Saarik Kalia |
| 12:00 | Lunch break |
| 14:00 | Break |
| 15:00 | Coffee break |
| 15:30 | Break |

Wednesday 16 July

| 10:00 | What new physics can we learn from JWST? |
|-------|--|
| 10:45 | Contribution Speaker: Julian Muñoz |
| 10:45 | Coffee break |
| 11:15 | Break |
| 11:15 | Exploring the epoch of helium reionization with kSZ tomography |
| 12:00 | Contribution Speaker: Amalia Madden |
| 12:00 | Lunch break |
| 14:00 | Break |
| 15:00 | Coffee break |
| 15:30 | Break |

Thursday 17 July

| 10:00 | BBN bounds on lepton flavour asymmetries |
|-------|--|
| 10:45 | Contribution Speaker: Valerie Domcke |
| 10:45 | Coffee break |
| 11:15 | Break |
| 11:15 | Did IceCube detect DM around blazars? |
| 12:00 | Contribution Speaker: Filippo Sala |
| 12:00 | Lunch break |
| 14:00 | Break |
| 15:00 | Coffee break |
| 15:30 | Break |

Friday 18 July

| 10:00 | Open string axiverse |
|-------|--|
| 10:45 | Contribution Speaker: Rudin Petrossian-Byrne |
| 10:45 | Coffee break |
| 11:15 | Break |
| 11:15 | TBA |
| 12:00 | Contribution Speaker: Christopher Gerlach |
| 12:00 | Lunch break |
| 14:00 | Break |
| 15:00 | Coffee break |
| 15:30 | Break |

Monday 21 July

| 10:00 | Coffee break |
|-------|---|
| 10:30 | Break |
| 13:45 | Welcome |
| 14:00 | Contribution |
| 14:00 | NuSTAR as an axion helioscope |
| 14:45 | Contribution Speaker: Elisa Todarello |
| 14:45 | Coffee break |
| 15:15 | Break |
| 15:15 | Introduction session |
| 16:30 | Contribution |

Tuesday 22 July

| 10:00 | Supercooling in confining gauge theories |
|-------|--|
| 10:45 | Contribution Speaker: Vazha Loladze |
| 10:45 | Coffee break |
| 11:15 | Break |
| 11:15 | Confining Sectors in the Early Universe |
| 12:00 | Contribution Speaker: Rashmish Mishra |
| 12:00 | Lunch break |
| 14:00 | Break |
| 15:00 | Coffee break |
| 15:30 | Break |

Wednesday 23 July

| 10:00 | Observable CMB B-Modes from Cosmological Phase Transitions (and Beyond) |
|-------|---|
| 10:45 | Contribution Speaker: Aurora Ireland |
| 10:45 | Coffee break |
| 11:15 | Break |
| 11:15 | Hunting axions with the James Webb Space Telescope |
| 12:00 | Contribution Speaker: Elena Pinetti |
| 12:00 | Lunch break |
| 14:00 | Break |
| 15:00 | Coffee break |
| 15:30 | Break |

Thursday 24 July

| 10:00 | ТВА |
|-------|---|
| 10:45 | Contribution Speaker: Peizhi Du |
| 10:45 | Coffee break |
| 11:15 | Break |
| 11:15 | ТВА |
| 12:00 | Contribution Speaker: Moritz Münchmeyer |
| 12:00 | Lunch break |
| 14:00 | Break |
| 15:00 | Coffee break |
| 15.30 | Break |

Friday 25 July

| 10:00 | The First 3 Minutes in a Few Seconds (or Less) |
|-------|--|
| 10:45 | Contribution Speaker: Mauro Valli |
| 10:45 | Coffee break |
| 11:15 | Break |
| 11:15 | The bearable inhomogeneity of the baryon asymmetry |
| 12:00 | Contribution Speaker: Majid Ekhterachian |
| 12:00 | Lunch break |
| 14:00 | Break |
| 15:00 | Coffee break |
| 15:30 | Break |

Monday 28 July

| 10:00 | Coffee break |
|-------|--------------------------------------|
| 10:30 | Break |
| 13:45 | Welcome |
| 14:00 | Contribution |
| 14:00 | TBA |
| 14:45 | Contribution Speaker: Sonali Verma |
| 14:45 | Coffee break |
| 15:15 | Break |
| 15:15 | Introduction session |
| 16:30 | Contribution |

Tuesday 29 July

| 10:00 10:45 | TBA Contribution Speaker: Yikun Wang |
|----------------|---|
| 10:45 | Coffee break |
| 11:15 | Break |
| 11:15 | ТВА |
| 12:00 | Contribution Speaker: Tim Linden |
| 12:00 | Lunch break |
| 14:00 | Break |
| 14:00 | ТВА |
| 14:45 | Contribution Speaker: Anubhav Mathur |
| 15:00 | Coffee break |
| 15:30 | Break |

Wednesday 30 July

| 10:00 | ТВА |
|-------|---|
| 10:45 | Contribution Speaker: Zachary Bogorad |
| 10.45 | |
| 10:45 | Coffee break |
| 11:15 | Break |
| 11.15 | |
| 11:15 | ТВА |
| | Contribution Speaker: Hannah Banks |
| 12:00 | |
| 12.00 | |
| 12:00 | Lunch break |
| | Break |
| 14:00 | |
| 1100 | |
| 14:00 | Spin-dependent Exotic Interactions |
| | Contribution Speaker: Lei Cong |
| 14:45 | |
| | |
| 15:00 | Coffee break |
| | Break |
| | |

Thursday 31 July

| 10:00 | TBA |
|-------|--------------------------------------|
| 10:45 | Contribution Speaker: Devin Walker |
| 10:45 | Coffee break |
| 11:15 | Break |
| 11:15 | TBA |
| 12:00 | Contribution Speaker: David Kaplan |
| 12:00 | Lunch break |
| 14:00 | Break |
| 15:00 | Coffee break Break |

Friday 1 August

| 10:45 | Coffee break |
|-------|--------------|
| 11:15 | Break |
| 12:00 | Lunch break |
| 14:00 | Break |
| 15:00 | Coffee break |
| 15:30 | Break |