Mainz-Frankfurt CosmoCoffee 2026

Report of Contributions

https://indico.global/e/17019

Contribution ID: **1** Type: **not specified**

Welcome

Tuesday, 21 April 2026 10:00 (5 minutes)

Presenter: SCHMITT, Daniel (Goethe University, Frankfurt)

Contribution ID: **10** Type: **not specified**

CONTRIBUTED

Tuesday, 21 April 2026 10:05 (1h 10m)

Contribution ID: **11** Type: **not specified**

CONTRIBUTED

Tuesday, 21 April 2026 11:45 (45 minutes)

Contribution ID: **12** Type: **not specified**

The strong force could have heated the Universe's first moment

Tuesday, 21 April 2026 14:00 (1 hour)

In a recent breakthrough we showed that the strong nuclear force of the Standard Model may have generated the heat of the hot Big Bang itself. It is widely believed that cosmic inflation, the era of accelerated expansion in the infant universe, occurred while the cosmos was cold and empty, requiring some unknown process to subsequently generate the hot plasma we observe. Our work demonstrates that the early universe may have instead been immersed in a hot bath of known elementary particles during inflation. The proposed mechanism couples gluons, which mediate the strong force in atomic nuclei, with an axion-like particle that drives inflation. This coupling induces friction that provides the energy to heat the inflating universe. In this talk, I will show that "warm inflation"(a hypothesis first proposed in 1995) is viable using Standard Model particles and yields testable predictions for upcoming observations. Implications for strong CP and dark matter will be discussed.

Presenter: BERGHAUS, Kim

Contribution ID: **13** Type: **not specified**

CONTRIBUTED

Tuesday, 21 April 2026 15:30 (1h 30m)