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## Education

**2003** Fil. Dr. in Theoretical Physics, University of Helsinki.  
**2000** Cand. Scient. (Master) in Physics, the Niels Bohr Institute, University of Copenhagen.  
**1997** B.Sc. in physics and mathematics, University of Copenhagen.

## Positions

**2016 -** Professor, SDU, Denmark  
**2012 - 2016** Associate Professor, SDU, Denmark  
**2011 - 2012** Maitre assistant, Theoretical physics division, University of Geneva, Switzerland  
**2009 - 2011** CERN fellow, the theory unit at CERN, Switzerland.  
**2006 - 2009** Research assistant professor, University of Aarhus, Denmark.  
**2004 - 2006** Post-doctoral researcher, University of California, Davis, USA.  
**2003 - 2004** Post-doctoral researcher, the Helsinki Institute of Physics, Finland.  
**2000 - 2003** Research assistant, University of Helsinki, Finland.

## Other affiliations

Associated Scientist, CERN

## Awards and Grants

**2016** Research project, Villum Fonden, DKK 3 mill. (€ 400.000.).  
**2011** Jr. Group Leader Fellowship grant from the Lundbeck Foundation, DKK 10 mill. (€ 1.3 mill.).  
**2010** and **2017** Awarded an honorable mention in the 2010 Gravity Research Foundation essay competition.  
**2009** Awarded CERN theory fellowship.  
**2000** Inter-Nordic Mobility scholarship from NorFA.  
**1998** Selected as official summer student at CERN

## Research interests

Cosmology, astroparticle physics, physics beyond the standard model, quantum field theory, string theory.

## Examples of Courses Taught

General relativity and cosmology (SDU)  
Advanced topics in Fundamental Physics (SDU)  
Advanced quantum mechanics (SDU)  
Laboratoire de physique IV théorique (Geneva)  
Quantum field theory in curved space with applications to cosmology (SDU & Aarhus)  
Physics beyond the Standard Model (Aarhus)  
Advanced inflation (Nordita)

## Post-docs

**2018 -** Florian Niedermann  
**2014 - 2016** McCullen Sandora  
**2013 - 2016** Jonathan Ganc  
**2012 - 2016** Rajeev Kumar Jain  
**2007 - 2009** Troels Haugbølle (joint with Steen Hannestad)

## Ph.D. Students

**2016 -** Andrea Palessandro

2012 - 2015 Ricardo Z. Ferreira  
2006 - 2009 Philip Jarnhus (joint with Steen Hannestad)

## Academic Commissions of Trust

Boards:

Editor of JCAP (Journal of Cosmology and Astroparticle Physics)  
Head of Ph.D. program in physics  
EU COST action network, managing committee member  
Member of the Assistant/Associate Professor promotion committee  
Member of the NORDITA gravity and cosmology post-doc selection committee

Grants:

Reviewer of ERC consolidator grants; Erwin Schrodinger-Fellowships, the Austrian national science foundation; Vidi-research proposals, the Netherlands Organisation for Scientific Research (Dutch Science Council); University Research Fellowships, The Royal Society in UK.

Journals:

Acting referee for JHEP (Journal of High Energy Physics), JCAP (Journal of Cosmology and Astro-particle Physics), PRD (Physical Review D), PRL (Physical Review Letters), Classical and Quantum Gravity, Astroparticle Physics, and MNRAS (Monthly News of Royal Astronomical Society).

## Publications

### Hot New Early Dark Energy bridging cosmic gaps: Supercooled phase transition reconciles (stepped) dark radiation solutions to the Hubble tension with BBN

Garny, M., Niedermann, F., Rubira, H. & Sloth, M. S., 10. Apr 2024, 23 p.

### NANOGrav meets Hot New Early Dark Energy and the origin of neutrino mass

Cruz, J. S., Niedermann, F. & Sloth, M. S., 10. Nov 2023, In: Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics. 846, 6 p., 138202.

### Cold New Early Dark Energy pulls the trigger on the $H_0$ and $S_8$ tensions: a simultaneous solution to both tensions without new ingredients

Cruz, J. S., Niedermann, F. & Sloth, M. S., 1. Nov 2023, In: Journal of Cosmology and Astroparticle Physics. 2023, 11, 35 p., 033.

### Profiling cold new early dark energy

Cruz, J. S., Hannestad, S., Holm, E. B., Niedermann, F., Sloth, M. S. & Tram, T., 15. Jul 2023, In: Physical Review D. 108, 2, 13 p., 023518.

### Cold New Early Dark Energy pulls the trigger on the $H_0$ and $S_8$ tensions: a simultaneous solution to both tensions without new ingredients

Cruz, J. S., Niedermann, F. & Sloth, M. S., 15. May 2023, 41 p. arXiv.org.

### A grounded perspective on new early dark energy using ACT, SPT, and BICEP/Keck

Cruz, J. S., Niedermann, F. & Sloth, M. S., 22. Feb 2023, In: Journal of Cosmology and Astroparticle Physics. 2023, 2, 38 p., 041.

### Hot new early dark energy: Towards a unified dark sector of neutrinos, dark energy and dark matter

Niedermann, F. & Sloth, M. S., 10. Dec 2022, In: Physics Letters B. 835, 137555.

### Cosmology intertwined: A review of the particle physics, astrophysics, and cosmology associated with the cosmological tensions and anomalies

Abdalla, E., Abellán, G. F., Aboubrahim, A., Agnello, A., Akarsu, Ö., Akrami, Y., Alestas, G., Aloni, D., Amendola, L., Anchordoqui, L. A., Anderson, R. I., Arendse, N., Asgari, M., Ballardini, M., Barger, V., Basilakos, S., Batista, R. C., Battistelli, E. S., Battye, R. & Benetti, M. & 183 others, Benisty, D., Berlin, A., de Bernardis, P., Berti, E., Bidenko, B., Birrer, S., Blakeslee, J. P., Boddy, K. K., Bom, C. R., Bonilla, A., Borghi, N., Bouchet, F. R., Braglia, M., Buchert, T., Buckley-Geer, E., Calabrese, E., Caldwell, R. R., Camarena, D., Capozziello, S., Casertano, S., Chen, G. C. F., Chluba, J., Chen, A., Chen, H. Y., Chudaykin, A., Cicoli, M., Copi, C. J., Courbin, F., Cyr-Racine, F. Y., Czerny, B., Dainotti, M., D'Amico, G., Davis, A. C., de Cruz Pérez, J., de Haro, J., Delabrouille, J., Denton, P. B., Dhawan, S., Dienes, K. R., Di Valentino, E., Du, P., Eckert, D., Escamilla-Rivera, C., Ferté, A., Finelli, F., Fosalba, P., Freedman, W. L., Frusciante, N.,

Gaztañaga, E., Giarè, W., Giusarma, E., Gómez-Valent, A., Handley, W., Harrison, I., Hart, L., Hazra, D. K., Heavens, A., Heinesen, A., Hildebrandt, H., Hill, J. C., Hogg, N. B., Holz, D. E., Hooper, D. C., Hosseininejad, N., Huterer, D., Ishak, M., Ivanov, M. M., Jaffe, A. H., Jang, I. S., Jedamzik, K., Jimenez, R., Joseph, M., Joudaki, S., Kamionkowski, M., Karwal, T., Kazantzidis, L., Keeley, R. E., Klaser, M., Komatsu, E., Koopmans, L. V. E., Kumar, S., Lamagna, L., Lazkoz, R., Lee, C. C., Lesgourgues, J., Levi Said, J., Lewis, T. R., L'Huillier, B., Lucca, M., Maartens, R., Macri, L. M., Marfatia, D., Marra, V., Martins, C. J. A. P., Masi, S., Matarrese, S., Mazumdar, A., Melchiorri, A., Mena, O., Mersini-Houghton, L., Mertens, J., Milaković, D., Minami, Y., Miranda, V., Moreno-Pulido, C., Moresco, M., Mota, D. F., Mottola, E., Mozzon, S., Muir, J., Mukherjee, A., Mukherjee, S., Naselsky, P., Nath, P., Nesseris, S., Niedermann, F., Notari, A., Nunes, R. C., Ó Colgáin, E., Owens, K. A., Özülker, E., Pace, F., Paliathanasis, A., Palmese, A., Pan, S., Paoletti, D., Perez Bergliaffa, S. E., Perivolaropoulos, L., Pesce, D. W., Pettorino, V., Philcox, O. H. E., Pogosian, L., Poulin, V., Poulot, G., Raveri, M., Reid, M. J., Renzi, F., Riess, A. G., Sabla, V. I., Salucci, P., Salzano, V., Saridakis, E. N., Sathyaprakash, B. S., Schmalz, M., Schöneberg, N., Scolnic, D., Sen, A. A., Sehgal, N., Shafieloo, A., Sheikh-Jabbari, M. M., Silk, J., Silvestri, A., Skara, F., Sloth, M. S., Soares-Santos, M., Solà Peracaula, J., Songsheng, Y. Y., Soriano, J. F., Staicova, D., Starkman, G. D., Szapudi, I., Teixeira, E. M., Thomas, B., Treu, T., Trott, E., van de Bruck, C., Vazquez, J. A., Verde, L., Visinelli, L., Wang, D., Wang, J. M., Wang, S. J., Watkins, R., Watson, S., Webb, J. K., Weiner, N., Weltman, A., Witte, S. J., Wojtak, R., Yadav, A. K., Yang, W., Zhao, G. B. & Zumalacárregui, M., Jun 2022, In: Journal of High Energy Astrophysics. 34, p. 49-211

### Hot new early dark energy

Niedermann, F. & Sloth, M. S., 8. Mar 2022, In: Physical Review D. 105, 6, 35 p., 063509.

### On the primordial correlation of gravitons with gauge fields

Jain, R. K., Sai, P. J. & Sloth, M. S., Mar 2022, In: Journal of Cosmology and Astroparticle Physics. 2022, 3, 054.

### Cosmology intertwined III: $f\sigma_8$ and $S_8$

Di Valentino, E., Anchordoqui, L. A., Akarsu, Ö., Ali-Haimoud, Y., Amendola, L., Arendse, N., Asgari, M., Ballardini, M., Basilakos, S., Battistelli, E., Benetti, M., Birrer, S., Bouchet, F. R., Bruni, M., Calabrese, E., Camarena, D., Capozziello, S., Chen, A., Chluba, J. & Chudaykin, A. & 72 others, Colgáin, E., Cyr-Racine, F. Y., de Bernardis, P., de Cruz Pérez, J., Delabrouille, J., Dunkley, J., Escamilla-Rivera, C., Ferté, A., Finelli, F., Freedman, W., Frusciante, N., Giusarma, E., Gómez-Valent, A., Handley, W., Harrison, I., Hart, L., Heavens, A., Hildebrandt, H., Holz, D., Huterer, D., Ivanov, M. M., Joudaki, S., Kamionkowski, M., Karwal, T., Knox, L., Kumar, S., Lamagna, L., Lesgourgues, J., Lucca, M., Marra, V., Masi, S., Matarrese, S., Mazumdar, A., Melchiorri, A., Mena, O., Mersini-Houghton, L., Miranda, V., Moreno-Pulido, C., Mota, D. F., Muir, J., Mukherjee, A., Niedermann, F., Notari, A., Nunes, R. C., Pace, F., Paliathanasis, A., Palmese, A., Pan, S., Paoletti, D., Pettorino, V., Piacentini, F., Poulin, V., Raveri, M., Riess, A. G., Salzano, V., Saridakis, E. N., Sen, A. A., Shafieloo, A., Shajib, A. J., Silk, J., Silvestri, A., Sloth, M. S., Smith, T. L., Solà Peracaula, J., van de Bruck, C., Verde, L., Visinelli, L., Wandelt, B. D., Wang, D., Wang, J. M., Yadav, A. K. & Yang, W., Sept 2021, In: Astroparticle Physics. 131, 6 p., 102604.

### Snowmass2021 - Letter of interest cosmology intertwined I: Perspectives for the next decade

Di Valentino, E., Anchordoqui, L. A., Akarsu, Ö., Ali-Haimoud, Y., Amendola, L., Arendse, N., Asgari, M., Ballardini, M., Basilakos, S., Battistelli, E., Benetti, M., Birrer, S., Bouchet, F. R., Bruni, M., Calabrese, E., Camarena, D., Capozziello, S., Chen, A., Chluba, J. & Chudaykin, A. & 72 others, Colgáin, E., Cyr-Racine, F. Y., de Bernardis, P., de Cruz Pérez, J., Delabrouille, J., Dunkley, J., Escamilla-Rivera, C., Ferté, A., Finelli, F., Freedman, W., Frusciante, N., Giusarma, E., Gómez-Valent, A., Handley, W., Harrison, I., Hart, L., Heavens, A., Hildebrandt, H., Holz, D., Huterer, D., Ivanov, M. M., Joudaki, S., Kamionkowski, M., Karwal, T., Knox, L., Kumar, S., Lamagna, L., Lesgourgues, J., Lucca, M., Marra, V., Masi, S., Matarrese, S., Mazumdar, A., Melchiorri, A., Mena, O., Mersini-Houghton, L., Miranda, V., Moreno-Pulido, C., Mota, D. F., Muir, J., Mukherjee, A., Niedermann, F., Notari, A., Nunes, R. C., Pace, F., Paliathanasis, A., Palmese, A., Pan, S., Paoletti, D., Pettorino, V., Piacentini, F., Poulin, V., Raveri, M., Riess, A. G., Salzano, V., Saridakis, E. N., Sen, A. A., Shafieloo, A., Shajib, A. J., Silk, J., Silvestri, A., Sloth, M. S., Smith, T. L., Solà Peracaula, J., van de Bruck, C., Verde, L., Visinelli, L., Wandelt, B. D., Wang, D., Wang, J. M., Yadav, A. K. & Yang, W., Sept 2021, In: Astroparticle Physics. 131, 102606.

### Snowmass2021 - Letter of interest cosmology intertwined II: The hubble constant tension

Di Valentino, E., Anchordoqui, L. A., Akarsu, Ö., Ali-Haimoud, Y., Amendola, L., Arendse, N., Asgari, M., Ballardini, M., Basilakos, S., Battistelli, E., Benetti, M., Birrer, S., Bouchet, F. R., Bruni, M., Calabrese, E., Camarena, D., Capozziello, S., Chen, A., Chluba, J. & Chudaykin, A. & 73 others, Colgáin, E., Cyr-Racine, F. Y., de Bernardis, P., de Cruz Pérez, J., Delabrouille, J., Dunkley, J., Escamilla-Rivera, C., Ferté, A., Finelli, F., Freedman, W., Frusciante, N., Giusarma, E., Gómez-Valent, A., Guy, J., Handley, W., Harrison, I., Hart, L., Heavens, A., Hildebrandt, H., Holz, D., Huterer, D., Ivanov, M. M., Joudaki, S., Kamionkowski, M., Karwal, T., Knox, L., Kumar, S., Lamagna, L., Lesgourgues, J., Lucca, M., Marra, V., Masi, S., Matarrese, S., Mazumdar, A., Melchiorri, A., Mena, O., Mersini-Houghton, L., Miranda, V., Moreno-Pulido, C., Mota, D. F., Muir, J., Mukherjee, A., Niedermann, F., Notari, A., Nunes, R. C., Pace, F., Paliathanasis, A., Palmese, A., Pan, S., Paoletti, D., Pettorino, V., Piacentini, F., Poulin, V., Raveri, M., Riess, A. G., Salzano, V., Saridakis, E. N., Sen, A. A., Shafieloo, A., Shajib, A. J., Silk, J., Silvestri, A., Sloth, M. S., Smith, T. L., Solà Peracaula, J., van de Bruck, C., Verde,

L., Visinelli, L., Wandelt, B. D., Wang, D., Wang, J. M., Yadav, A. K. & Yang, W., Sept 2021, In: *Astroparticle Physics*. 131, 102605.

### **Snowmass2021 - Letter of interest cosmology intertwined IV: The age of the universe and its curvature**

Di Valentino, E., Anchordoqui, L. A., Akarsu, Ö., Ali-Haimoud, Y., Amendola, L., Arendse, N., Asgari, M., Ballardini, M., Basilakos, S., Battistelli, E., Benetti, M., Birrer, S., Bouchet, F. R., Bruni, M., Calabrese, E., Camarena, D., Capozziello, S., Chen, A., Chluba, J. & Chudaykin, A. & 71 others, Colgáin, E., Cyr-Racine, F. Y., de Bernardis, P., de Cruz Pérez, J., Delabrouille, J., Escamilla-Rivera, C., Ferté, A., Finelli, F., Freedman, W., Frusciante, N., Giusarma, E., Gómez-Valent, A., Handley, W., Harrison, I., Hart, L., Heavens, A., Hildebrandt, H., Holz, D., Huterer, D., Ivanov, M. M., Joudaki, S., Kamionkowski, M., Karwal, T., Knox, L., Kumar, S., Lamagna, L., Lesgourgues, J., Lucca, M., Marra, V., Masi, S., Matarrese, S., Mazumdar, A., Melchiorri, A., Mena, O., Mersini-Houghton, L., Miranda, V., Moreno-Pulido, C., Mota, D. F., Muir, J., Mukherjee, A., Niedermann, F., Notari, A., Nunes, R. C., Pace, F., Paliathanasis, A., Palmese, A., Pan, S., Paoletti, D., Pettorino, V., Piacentini, F., Poulin, V., Raveri, M., Riess, A. G., Salzano, V., Saridakis, E. N., Sen, A. A., Shafieloo, A., Shajib, A. J., Silk, J., Silvestri, A., Sloth, M. S., Smith, T. L., Solà Peracaula, J., van de Bruck, C., Verde, L., Visinelli, L., Wandelt, B. D., Wang, D., Wang, J. M., Yadav, A. K. & Yang, W., Sept 2021, In: *Astroparticle Physics*. 131, 102607.

### **New early dark energy is compatible with current LSS data**

Niedermann, F. & Sloth, M. S., 15. May 2021, In: *Physical Review D*. 103, 10, 103537.

### **New Early Dark Energy**

Niedermann, F. & Sloth, M. S., 15. Feb 2021, In: *Physical Review D*. 103, 4, 7 p., L041303.

### **Resolving the Hubble tension with new early dark energy**

Niedermann, F. & Sloth, M. S., 15. Sept 2020, In: *Physical Review D*. 102, 6, 063527.

### **Cosmology Intertwined I: Perspectives for the Next Decade**

Valentino, E. D., Anchordoqui, L. A., Akarsu, O., Ali-Haimoud, Y., Amendola, L., Arendse, N., Asgari, M., Ballardini, M., Basilakos, S., Battistelli, E., Benetti, M., Birrer, S., Bouchet, F. R., Bruni, M., Calabrese, E., Camarena, D., Capozziello, S., Chen, A., Chluba, J. & Chudaykin, A. & 72 others, Colgáin, E. Ó., Cyr-Racine, F.-Y., Bernardis, P. D., Pérez, J. D. C., Delabrouille, J., Dunkley, J., Escamilla-Rivera, C., Ferté, A., Finelli, F., Freedman, W., Frusciante, N., Giusarma, E., Gómez-Valent, A., Handley, W., Harrison, I., Hart, L., Heavens, A., Hildebrandt, H., Holz, D., Huterer, D., Ivanov, M. M., Joudaki, S., Kamionkowski, M., Karwal, T., Knox, L., Kumar, S., Lamagna, L., Lesgourgues, J., Lucca, M., Marra, V., Masi, S., Matarrese, S., Mazumdar, A., Melchiorri, A., Mena, O., Mersini-Houghton, L., Miranda, V., Moreno-Pulido, C., Mota, D. F., Muir, J., Mukherjee, A., Niedermann, F., Notari, A., Nunes, R. C., Pace, F., Paliathanasis, A., Palmese, A., Pan, S., Paoletti, D., Pettorino, V., Piacentini, F., Poulin, V., Raveri, M., Riess, A. G., Salzano, V., Saridakis, E. N., Sen, A. A., Shafieloo, A., Shajib, A. J., Silk, J., Silvestri, A., Sloth, M. S., Smith, T. L., Solà, J., Bruck, C. V. D., Verde, L., Visinelli, L., Wandelt, B. D., Wang, D., Wang, J.-M., Yadav, A. K. & Yang, W., 25. Aug 2020, In: *arxiv.org*. 8 p.

### **Cosmology Intertwined II: The Hubble Constant Tension**

Valentino, E. D., Anchordoqui, L. A., Akarsu, O., Ali-Haimoud, Y., Amendola, L., Arendse, N., Asgari, M., Ballardini, M., Basilakos, S., Battistelli, E., Benetti, M., Birrer, S., Bouchet, F. R., Bruni, M., Calabrese, E., Camarena, D., Capozziello, S., Chen, A., Chluba, J. & Chudaykin, A. & 73 others, Colgáin, E. Ó., Cyr-Racine, F.-Y., Bernardis, P. D., Pérez, J. D. C., Delabrouille, J., Dunkley, J., Escamilla-Rivera, C., Ferté, A., Finelli, F., Freedman, W., Frusciante, N., Giusarma, E., Gómez-Valent, A., Guy, J., Handley, W., Harrison, I., Hart, L., Heavens, A., Hildebrandt, H., Holz, D., Huterer, D., Ivanov, M. M., Joudaki, S., Kamionkowski, M., Karwal, T., Knox, L., Kumar, S., Lamagna, L., Lesgourgues, J., Lucca, M., Marra, V., Masi, S., Matarrese, S., Mazumdar, A., Melchiorri, A., Mena, O., Mersini-Houghton, L., Miranda, V., Moreno-Pulido, C., Mota, D. F., Muir, J., Mukherjee, A., Niedermann, F., Notari, A., Nunes, R. C., Pace, F., Paliathanasis, A., Palmese, A., Pan, S., Paoletti, D., Pettorino, V., Piacentini, F., Poulin, V., Raveri, M., Riess, A. G., Salzano, V., Saridakis, E. N., Sen, A. A., Shafieloo, A., Shajib, A. J., Silk, J., Silvestri, A., Sloth, M. S., Smith, T. L., Solà, J., Bruck, C. V. D., Verde, L., Visinelli, L., Wandelt, B. D., Wang, D., Wang, J.-M., Yadav, A. K. & Yang, W., 25. Aug 2020, In: *arxiv.org*. 21 p.

### **Cosmology Intertwined IV: The Age of the Universe and its Curvature**

Valentino, E. D., Anchordoqui, L. A., Akarsu, O., Ali-Haimoud, Y., Amendola, L., Arendse, N., Asgari, M., Ballardini, M., Basilakos, S., Battistelli, E., Benetti, M., Birrer, S., Bouchet, F. R., Bruni, M., Calabrese, E., Camarena, D., Capozziello, S., Chen, A., Chluba, J. & Chudaykin, A. & 71 others, Colgáin, E. Ó., Cyr-Racine, F.-Y., Bernardis, P. D., Pérez, J. D. C., Delabrouille, J., Escamilla-Rivera, C., Ferté, A., Finelli, F., Freedman, W., Frusciante, N., Giusarma, E., Gómez-Valent, A., Handley, W., Harrison, I., Hart, L., Heavens, A., Hildebrandt, H., Holz, D., Huterer, D., Ivanov, M. M., Joudaki, S., Kamionkowski, M., Karwal, T., Knox, L., Kumar, S., Lamagna, L., Lesgourgues, J., Lucca, M., Marra, V., Masi, S., Matarrese, S., Mazumdar, A., Melchiorri, A., Mena, O., Mersini-Houghton, L., Miranda, V., Moreno-Pulido, C., Mota, D. F., Muir, J., Mukherjee, A., Niedermann, F., Notari, A., Nunes, R. C., Pace, F., Paliathanasis, A., Palmese, A., Pan, S.,

Paoletti, D., Pettorino, V., Piacentini, F., Poulin, V., Raveri, M., Riess, A. G., Salzano, V., Saridakis, E. N., Sen, A. A., Shafieloo, A., Shajib, A. J., Silk, J., Silvestri, A., Sloth, M. S., Smith, T. L., Solà, J., Bruck, C. V. D., Verde, L., Visinelli, L., Wandelt, B. D., Wang, D., Wang, J.-M., Yadav, A. K. & Yang, W., 25. Aug 2020, In: arxiv.org. 8 p.

### **Inflation: Én oprindelse for alt?**

Sloth, M. S., Jun 2020, In: Kvant - Tidsskrift for fysik og Astronomi. 2, p. 13-16

### **Gravitational Absorption Lines**

Palessandro, A. & Sloth, M. S., 4. Feb 2020, In: Physical Review D. 101, 4, 33 p., 043504.

### **Early cosmological evolution of primordial electromagnetic fields**

Kobayash, T. & Sloth, M. S., 15. Jul 2019, In: Physical Review D. 100, 2, 16 p., 023524.

### **Gravitational atoms**

Nielsen, N. G., Palessandro, A. & Sloth, M. S., 17. Jun 2019, In: Physical Review D. 99, 12, 123011.

### **Charged planckian interacting dark matter**

Garny, M., Palessandro, A., Sandora, M. & Sloth, M. S., 8. Jan 2019, In: Journal of Cosmology and Astroparticle Physics. 2019, 1, 36 p., 021.

### **Asymptotic Symmetries and Patient Observers in de Sitter**

Sloth, M. S., 2018, In: Bulgarian Journal of Physics. 45, 2, p. 114-125

### **Occam's razor dark matter: Planckian interacting massive particles**

Sloth, M. S., 2018, *Proceedings of 53rd Rencontres de Moriond on Cosmology*. Auge, E., Dumarchez, J. & Tran Thanh Van, J. (eds.). ARISF, p. 267-270

### **Patient observers and non-perturbative infrared dynamics in inflation**

Ferreira, R. Z., Sandora, M. & Sloth, M. S., 2018, In: Journal of Cosmology and Astroparticle Physics. 2018, 2, 32 p., 055.

### **Theory and phenomenology of Planckian interacting massive particles as dark matter**

Garny, M., Palessandro, A., Sandora, M. & Sloth, M. S., 2018, In: Journal of Cosmology and Astroparticle Physics. 2018, 2, 39 p., 027.

### **Asymptotic symmetries in de Sitter and inflationary spacetimes**

Ferreira, R. J. Z., Sandora, M. & Sloth, M. S., 2017, In: Journal of Cosmology and Astroparticle Physics. 2017, 4, 35 p., 033.

### **Is patience a virtue? Cosmic censorship of infrared effects in de Sitter**

Ferreira, R. Z., Sandora, M. & Sloth, M. S., 2017, In: International Journal of Modern Physics D. 26, 12, 6 p., 1743019.

### **Planckian Interacting Massive Particles as Dark Matter**

Garny, M., Sandora, M. & Sloth, M. S., 11. Mar 2016, In: Physical Review Letters. 116, 10, p. 1-6 101302.

### **Large Field Inflation and Gravitational Entropy**

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### **On the validity of the perturbative description of axions during inflation**

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## Press clippings

### Dansk forsker bag ny teori om universets udvidelse

Sloth, M. S.  
05/03/2021  
1 item of Media coverage

### Én oprindelse for alt?

Sloth, M. S.  
13/06/2020  
1 Media contribution

### I begyndelsen

Sloth, M. S.  
28/03/2019  
1 Media contribution

### I begyndelsen

Sloth, M. S.  
28/03/2019  
1 Media contribution

### Fortalt: leder efter forklaring på Big Bang

Sloth, M. S.  
05/08/2018  
1 Media contribution

### WIMP alternatives...

Sloth, M. S.  
14/05/2018  
1 Media contribution

### Martin og Big Bang

Sloth, M. S.  
11/03/2018  
1 item of Media coverage

### AKTUELLE: Forskning i universets fødsel

Sloth, M. S.  
20/07/2016  
1 item of Media coverage



**Ny dansk teori: Mørkt stof består af ekstremt supertunge partikler**

Sloth, M. S.

29/03/2016

1 item of Media coverage

**Her er et nyt bud på, hvad universets mørke stof består af**

Sloth, M. S.

15/03/2016

1 item of Media coverage

**The Heavy Limit of Dark Matter**

Sloth, M. S.

10/03/2016

1 item of Media coverage

**Der står fronten**

Sloth, M. S.

30/10/2015

1 item of Media coverage

**Nyt lys over oldgammelt spørgsmål**

Sloth, M. S.

22/02/2014

1 item of Media coverage

**Mange nye svar afføder endnu flere spørgsmål**

Sloth, M. S.

17/08/2013

1 item of Media coverage

**Apropos... begyndelse**

Sloth, M. S.

12/08/2013

1 item of Media coverage

**Clearing up a Big Bang mystery**

Sloth, M. S.

18/01/2012

1 item of Media coverage

**Big Bang endevendes af dansk forsker**

Sloth, M. S.

30/12/2011

1 item of Media coverage

**Var der noget før Big Bang?**

Sloth, M. S.

30/12/2011

1 item of Media coverage

**Hvad kom før Big Bang?**

Sloth, M. S.

18/11/2011

1 item of Media coverage

### **Hvad kom før Big Bang?**

Sloth, M. S.

20/03/2011

1 item of Media coverage

### **'Seesaw' explains light dark-energy particles**

Sloth, M. S.

31/07/2007

1 item of Media coverage

## **Teaching Portfolio**

Educational training: obligatory training course in professional pedagogical skills, Aarhus U. 2007-2008

### **Administrative tasks relating to education:**

- Head of PhD program in Physics at FKF, SDU since 2012.
- Member of PhD committees at SDU and other European universities.
- Member of the Danish External Examiners Board in Physics.
- Organisation and design of courses at SDU.
- Initiated the astronomy specialisation at SDU
- Responsible for further education program in astronomy for high school teachers

### **Experience:**

- Has taught a large number of courses from basic to highly specialised level.
- Supervised large a number of bachelor students, master students, PhD students and Post-doc researchers.

### **Courses taught:**

Advanced quantum mechanics, general relativity and cosmology, advanced research topics in fundamental physics, introduction to astronomy, physics for biologists, advanced inflation, quantum field theory in curved space with applications to cosmology, physics beyond the standard model, laboratoire de physique IV thorique.