

# JURI SMIRNOV



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universitet

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Theoretical particle physics/astrophysics/cosmology, dark matter, gravitation, beyond the standard model, in particular complex dark sectors and precision experiments as searches for new physics.

Online: [INSPIRE profile J. Smirnov](#)

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## Scientific Positions

- Starting 2021     Researcher at the University of Stockholm
- 2019 – 2021     Alexander von Humboldt Fellow at the Ohio State University (CCAPP)
- 2018 – 2019     Postdoc at Southern Denmark University
- 2016 – 2018     Postdoc at University of Florence and INFN Florence, visiting researcher in the CERN theory division (2017 – 2018)

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## Education

- 2011 – 2015     Ph.D. in Theoretical Physics at the Max Planck Institute for Nuclear Physics in Heidelberg. Thesis: *Effects of the Quantum Vacuum in Particle Physics and Cosmology*; Supervisor: Prof. Dr. M. Lindner
- 2009 – 2011     M.Sc. in Theoretical and Mathematical Physics at Ludwig-Maximilians-University in Munich. Thesis: *Gauge invariant formulation of the cosmological backreaction*; Supervisor: Prof. Dr. S. Hofmann
- 2006 – 2009     B.Sc. in Physics at Ludwig-Maximilians-University in Munich. Thesis: *Correspondence of the conformal field theory and the AdS metric in 1+1 Dimensions*; Supervisor: Prof. Dr. I. Sachs

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## Honors and Awards

- 2020 – 2021     PI of a 14-hour brown dwarf survey with the Large Binocular Telescope
- 2019 – 2021     Feodor Lynen Fellowship of the Alexander von Humboldt Foundation
- 2012 – 2015     International Max Planck Research School for precision tests of fundamental symmetries
- 2012 – 2015     Member of the Heidelberg Graduate School for Fundamental Physics
- Since 2011     Bavarian Elite Network
- 2008 – 2009     ERASMUS Scholarship for studies at Queen's University of Belfast

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## Teaching Experience

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|-------------|---|
| 2019        | Southern Denmark University, Odense: Self-developed lectures on <a href="http://www.cp3-origins.dk/Introduction-to-Astroparticle-Physics">Astroparticle Physics: www.cp3-origins.dk/Introduction-to-Astroparticle-Physics</a> |
| 2015 – 2018 | Ph.D. thesis co-supervision (Moritz Platscher)  |
| 2013 – 2014 | M.Sc. thesis supervision (Steffen Schmitd)  |
| 2012 – 2013 | University of Heidelberg: Tutor for the Theoretical course, Advanced Quantum field theory (II) for Master and Graduate Students   |
| 2011 – 2012 | University of Heidelberg: Tutor for the Theoretical course, Advanced Quantum field theory (I) for Master and Graduate Students  |
| 2011        | Friedrich Ebert Gymnasium, Hamburg: Assistant teacher for Physics in the final grade  |
| 2010 – 2011 | Ludwig-Maximilians-University, Munich: Tutor for Quantum Field Theory course for graduate students  |
| 2009 – 2010 | Ludwig-Maximilians-University, Munich: Tutor for Mathematical Methods for physics undergraduate students  |
| 2009        | Ludwig-Maximilians-University, Munich: Tutor for Theoretical Mechanics course for physics undergraduate students  |
| 2009        | Ludwig-Maximilians-University, Munich: Supervisor for undergraduate medicine students during lab training   |

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## Service Experience

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| Ongoing | Referee for: Physical Review Letters, Physical Review D, Journal of Cosmology and Astroparticle Physics |
| Ongoing | Saturday volunteer work in SARS-CoV-2 testing lab, using physics skills to improve efficiency           |
| 2020    | Organization of an online Workshop “Dark Matter and Asymptotic Safety”                                  |
| 2020    | Running the <a href="#">Astroparticle Lunch seminar</a> CCAPP, Ohio State University                    |
| 2020    | Proposal referee for the NASA “FINESST” program   |
| 2018    | Running a weekly arXiv Journal Club at the CP3 center at the University of Southern Denmark, Odense     |
| 2018    | Dark Matter session convener, at the PASCOS 2018 in Cleveland   |
| 2014    | Organization of a Ph.D. student block seminar on Gravitational waves                                    |

- 2014 Member of the organizing committee of the [Winter-school](#) of the Heidelberg Graduate School for Fundamental Physics, Obergurgl (Austria)
- 2013 Organization of a Ph.D. student block seminar on sterile neutrinos
- 2012 – 2013 Student Representative of the Heidelberg Graduate School for Fundamental Physics during the application process for a grant extension, application successful
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### Selected Media Coverage

- 2021 [Interview in Livescience: Exoplanets as sub-GeV Dark Matter Detectors](#)
- 2021 [Interview in Science Magazine: Exoplanets as sub-GeV Dark Matter Detectors](#)
- 2020 [Quanta Magazine, on Exoplanets as sub-GeV Dark Matter Detectors](#)
- 2019 [The Conversation, on Vainshtein Screening](#)
- 2019 [Cosmosmagazine, on Vainshtein Screening](#)
- 2018 [N+1 Magazine, on Color-charged Dark Matter](#)
- 2017 [Phys.org, on Gravitational Wave Oscillations](#)
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### Public Outreach Talks

- 2018 Public invited talk at the Studentarhus Odense: “Dark Matter in the Universe”
- 2017 German teacher education program at CERN, Invited talk: “Modern Theoretical Physics”
- 2014 Max Planck Institute for Nuclear Physics in Heidelberg, public talk during on the day of open doors: “Dark Energy”
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### Invited Talks

- October 2021 Invited in person plenary talk at the GGI workshop “New Physics from the Sky” in Florence: “Thermal Squeezeout of Dark Matter” [Talk Recording](#)
- October 2021 Theory Seminar at University of Delaware: “Thermal Squeezeout of Dark Matter”
- September 2021 In person Seminar at Washington University of S. Louis: “Exoplanets as sub-GeV Darm Matter detectors”
- July 2021 Theory Seminar at University of Freiburg: “Thermal Squeezeout of Dark Matter”
- June 2021 Theory Seminar at CHEP Bengaluru: “Thermal Squeezeout of Dark Matter”
- June 2021 Invited Plenary talk at IPMU: “Bound-state effects in EW and colored co-annihilation and unitarity bound”

- May 2021 Theory Seminar at TUM, Munich, invited talk: “Accidentally Asymmetric Dark Matter”
- April 2021 Theory Seminar at Nikhef, Amsterdam, invited talk: “New Search Strategies for Complex Dark Sectors”
- Dezember 2020 3rd South American Dark Matter Workshop, invited talk: “New production mechanisms and search strategies for sub-GeV dark matter”
- November 2020 KIAS HEP Seminar Series, invited talk: “Co-SIMP Miracle”: [Talk Recording](#)
- October 2020 Dark Matter CTA Journal Club, invited talk: “Exoplanets as New Sub-GeV Dark Matter Detectors”
- July 2020 iDM Online Conference, Vienna, plenary talk: “Dark Matter Bound States and Thermal Dark Matter”: [Talk Recording](#)
- July 2020 “Invisibles” Online Network Meeting, invited talk: “New Directions for Thermal Dark Matter”
- July 2020 HEP Seminar Online, Fermilab, invited talk: “Co-SIMP Dark Matter”
- June 2020 Online Neuton Seminar Series, University of Pisa, invited talk: “Co-SIMP Dark Matter”
- June 2020 N3AS Network Online Meeting, UC Berkley, invited talk: “Co-SIMP Dark Matter”
- May 2020 miniDM OSU online Workshop, Ohio State University, Columbus, invited talk: “Relics of Thermal Dark Sectors”
- February 2020 New Directions in Heavy Dark Matter, DESY, Hamburg, invited talk: “Heavy Multiplets of weakly interacting Dark Matter”
- November 2019 University of Cincinnati, Cincinnati, invited seminar talk: “Dark Matter Research with Bound Systems”
- October 2019 Case Western Reserve University, Cleveland, invited seminar talk: “Dark Matter Research with Bound Systems”
- August 2019 Niels Bohr Institute, Copenhagen, invited seminar talk: “TeV-Scale Thermal WIMPs: Unitarity and its Consequences”
- May 2019 Dalitz Seminar, Oxford University, invited seminar talk: “TeV-Scale Thermal WIMPs: Unitarity and its Consequences”
- May 2019 INFN Division Florence, Florence, invited seminar talk: “Thermal History of Composite Dark Matter”
- March 2019 Max Planck Institute for Physics, Munich, invited seminar talk: “Phenomenology of Bigravity”
- September 2018 Hvar Workshop: On a Safe Road to Quantum Gravity with Matter, invited talk: “Safe Dark Matter”
- August 2018 CoDyCE Workshop in Lyon, invited talk: “Dark Matter Bound States”

- May 2018 Massachusetts Institute of Technology, Boston, invited seminar talk: “Dark Matter Bound States”
- April 2018 Dark Matter, Dawn of Discovery, Heidelberg, invited plenary talk: “Dark Matter Bound States”
- March 2018 ULB Brussels, invited seminar talk: “Dark Matter Bound States”
- September 2017 Collider Physics and the Cosmos, GGI Florence, invited talk: “Dark Matter Bound States”
- May 2017 CCAPP Ohio State University, Columbus, invited seminar talk: “Dark Matter Bound States”
- May 2016 Northwestern University, invited seminar talk: “Light from Dark Matter”
- May 2016 University of Cincinnati, Cincinnati, invited seminar talk: “Light from Dark Matter”
- May 2016 CCAPP Ohio State University, Columbus, invited seminar talk: “Light from Dark Matter”
- May 2015 Max Planck Institute for Physics, Munich, invited seminar talk: “Conformal Model Building”
- August 2014 DM@LHC Workshop, Oxford, invited plenary talk: “Conformal Model Building”

### Contributed Talks

- May 2020 Phenomenology Symposium 2020 Online, Pittsburgh, talk: “Co-SIMP Dark Matter”
- November 2019 PIKIMO Workshop, Cincinnati, talk: “Dark Matter Mass Bounds”
- April 2018 DM@LHC, talk: “Dark Matter Bound States”
- September 2017 Fundamental Physics in the Cosmos, DESY Hamburg, talk: “Dark Matter Bound States”
- May 2017 Case Western Reserve University, BLV conference, two talks: “Baryonic Higgs at the LHC” and “Dark Matter Bound States”
- May 2016 Phenomenology Symposium in Pittsburgh, talk: “Light from Dark Matter”
- September 2015 Physics at the LHC and beyond, DESY Hamburg, talk: “Light from Dark Matter”
- June 2015 WIN Conference at the MPIK in Heidelberg, talk: “Gamma Lines from Dark Matter”
- May 2015 Phenomenology Symposium at the University of Pittsburgh, talk: “Conformal Inverse Seesaw”
- April 2015 BLV at the University of Massachusetts, Amherst, talk: “Conformal Inverse Seesaw”

