

# Federico Capone

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## Work Experience

Apr 2021 – Ongoing **Post doctoral Fellow**, *EPSRC Doctoral Prize Fellowship, University of Southampton, UK.*

## Education

- 2017– 2021 **PhD in Applied Mathematics (Theoretical Physics)**, *University of Southampton, UK., Supervisor : Marika Taylor.*
- 2015–2017 **MSc in Theoretical Physics**, *Department of Mathematics and Physics, Università del Salento (Lecce), IT, Grade: 110 cum laude/110.*  
Thesis title: *Symmetries of Asymptotically FLat Spacetimes*, advisors Prof. L. Martina and Prof. M. Taylor.
- March 2017 – June 2017 **Internship**, *STAG Research Centre, Department of Mathematics, University of Southampton, UK, Supervisor Prof. M. Taylor.*
- Sept 2015 – Feb 2016 **Erasmus Program**, *École Normale Supérieure, Paris, FR.*
- 2012–2015 **BSc, Physics**, *Department of Mathematics and Physics, Università del Salento (Lecce), IT, Grade: 110 cum laude/110.*
- 2012–2018 **Scuola Superiore Universitaria ISUFI**, *School of Natural Sciences, Università del Salento (Lecce), IT, Grade: 70 cum laude/70.*

## Awards

2020 EPSRC Doctoral Prize Award, fellowship to be spent in 2021-2022

## List of Publications

- Published**
1. Capone, F., Taylor, M. *Cosmic branes and superrotations*. *J. High Energ. Phys.* (2019) 2019: **138**, arXiv:1904.04265
- Accepted preprints**
1. Capone, F. *General null asymptotics and superrotation-compatible configuration spaces in  $d \geq 4$* . arXiv:2108.01203, accepted for publication on *J. High Energ. Phys.*
- Proceedings contributions**
1. Capone, F. *BMS symmetries and holography: an introductory overview*. In Cacciatori, S., Güneysu, B. & Pigola, S. (Eds.) *Einstein Equations: Physical and Mathematical Aspects of General Relativity: Domoschool 2018* (pp. 197-225), Birkhäuser-Springer.

## Contributed seminars and presentations

- Feb 2020 Invited speaker at Indian Institute of Technology at Kanpur (IITK), Kanpur, India.
- Jan 2020 Lectures on advanced aspects of gravity and gauge theories. Università del Salento, Lecce, Italy.
- June 2019 Registered speaker at the STFC PhD school in strings, gauge theory and holography.
- Dec 2018 Invited speaker. Università del Salento, Lecce, Italy.
- July 2018 Registered speaker at "DOMOSCHOOL, Einstein Equations: Physical and Mathematical Aspects of General Relativity".

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## Research Visits

26 Jan - 16 Feb 2020 Visiting researcher, Indian Institute of Technology at Kanpur (IITK), Kanpur, India. *Host:* Prof. Arjun Bagchi. *Fund:* Royal Society International Exchanges Grant.

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## Conferences, Workshops and Schools (participation)

- Sept 2021 **Celestial Sphere: holography, CFT and amplitudes**, (*In person*) *Edinburgh, UK.*
- Nov 2020 **Island Hopping 2020: from Wormholes to Averages**, (*Online only*) *Geneva, CH.*
- June 2020 **Strings 2020**, (*Online only*) *Cape Town, RSA.*
- June 2020 **Black Hole Microstructure**, (*Online only*) *Paris, FR.*
- Oct 2019 **Beyond Lorentzian Geometry**, *Edinburgh, UK.*
- June 2019 **Workshop on holography, gauge theories and black holes**, *Southampton, UK.*
- June 2019 **STFC PhD school in strings, gauge theory and holography**, *Southampton, UK.*
- May 2019 **International School on Amplitudes and Cosmology, Holography and Positive Geometries**, *Lecce, Italy.*
- March 2019 **Integrability and Conformal Field Theory 2019**, *Oxford, UK.*
- Dec 2018-Jan 2019 **Recent Progress in Quantum Field/String Theory, The 36th Advanced School in Physics**, *Jerusalem, Israel.*
- Nov 2018 **LACES, Advanced Lectures on Fields and Strings**, *Florence, Italy.*
- Sept 2018 **GRAVITY@PRAGUE 2018**, *Prague, Czech Republic.*
- July 2018 **DOMOSCHOOL, Einstein Equations: Physical and Mathematical Aspects of General Relativity**, *Domodossola, Italy.*
- March 2018 **Workshop on holography, gauge theories and black holes**, *Southampton, UK.*
- March 2018 **ICTP Spring School on Superstring Theory and Related Topics**, *Trieste, Italy.*
- June 2017 **PMNP 2017: 50 years of IST**, *Gallipoli, Italy.*
- July 2016 **V Italian-Pakistani Workshop on Relativistic Astrophysics**, *Lecce, Italy.*
- August 2015 **Utrecht Summer School in Theoretical Physics**, *Utrecht, The Netherlands.*
- March 2015 **Jürgen Ehlers Spring School "Gravitational Physics"**, *Potsdam, Germany.*

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## Teaching, Thesis supervision and Divulgative Activity

- Tutoring** 1) First-year Engineering students tutor in the Engineering Mathematics Workshop (A.Y. 2017-18 and 2018-19). 2) Marker of Mathematics for (2nd Yr) Engineering II (A.Y. 2017-18 and 2018-19). 3) Tutor for the course *Mathematical methods for Physical Scientists* (A.Y 2020-21)
- Thesis Supervision** 1) Bachelor Degree Thesis by D. Melle, Università del Salento (LE), Italy. To be submitted in December 2020.
- Divulgative writing** I have written for *Il Chiasmo* an online magazine of the Italian Encyclopedia of Science, Letters, and Arts "Treccani". <http://www.treccani.it/magazine/chiasmo/>.
- Outreach** 1) Poster presentation at Festival of Doctoral Research, May 2018. 2) Secondary school STAG masterclasses, November 2018 and November 2019.

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## Languages

**Italian** Mother tongue, **English** Advanced (IELTS Academic Module 7.5), **French** Intermediate

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## Technical skills

LaTeX , OpenOffice, Windows and UNIX (Linux, MacOS), C++, Mathematica, Matlab