# MARCO SANCHIONI

## THEORETICAL PHYSICIST



## **EDUCATION**

2008 - 2011

University of Bologna

**BACHELORS OF PHYSICS** 

Grade: 110 cum laude

Bachelor Thesis: Superradiance effect in Kerr black holes

Thesis Advisor: Roberto Casadio

2011 - 2013

University of Trento

MASTER DEGREE IN PHYSICS

Grade: 110 cum laude Master Thesis: Trace anomaly in chiral conformal field

theories

Master advisor: Loriano Bonora Master co-advisor: Sergio Zerbini

2011 - 2013

SISSA (Trieste)

DIPLOMA IN THEORETICAL PHYSICS

Diploma of advanced studies in theoretical particle physics

and string theory

2013 - 2018

Niels Bohr Institute

University of

Copenhagen

PHD IN THEORETICAL PHYSICS

Project: New horizons in particle and condensed matter

physics from black holes

PhD Thesis: Blackfolds and non-AdS holography

PhD advisor: Niels Obers PhD co-advisor: Jacome Armas



## **MAJOR PUBBLICATIONS**

30 Dec 2015 Journal of High **Energy Physics** 

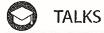
GRAVITATIONAL TENSION, SPACETIME PRESSURE AND BLACK HOLE VOLUME

Jay Armas, Niels A. Obers, Marco Sanchioni Published in JHEP 1609 (2016) 124 DOI: 10.1007/JHEP09(2016)124

30 June 2016 Journal of High **Energy Physics** 

LIFSHITZ HYDRODYNAMICS FROM LIFSHITZ BLACK BRANES WITH LINEAR MOMENTUM

Jelle Hartong, Niels A. Obers, Marco Sanchioni Published in JHEP 1610 (2016) 120 DOI: 10.1007/JHEP10(2016)120



13 March 2016 Jacobs University of Bremen

### 10° NORDIC STRING MEETING

From SchroedInger to Lifshitz Hydrodynamics by particle number breaking



## **TEACHING**

2014 - 2015

University of Copenhagen

**GENERAL RELATIVITY** 

30 hours of exercises and seminars on Einstein theory of general relativity for students of the bachelor degree in

2015 - 2016

University of Copenhagen

**GENERAL RELATIVITY** 

30 hours of exercises and seminars on Einstein theory of general relativity for students of the bachelor degree in physics

2015 - 2016

University of Copenhagen

SUPERSYMMETRIC FIELD THEORIES

30 hours of exercises and seminars on supersymmetry and supersymmetric field theories for students of the master degree in theoretical physics



## RESEARCH INTEREST



#### **BLACK HOLES PHYSICS**

Black holes are the most interesting objects of general relativity. I'm interested In understanding their microstate structures and their connection to quantum physics.



#### HOLOGRAPHIC CORRESPONDENCE

It has been one of the greatest revolotion in modern high energy physics, and it changed the destiny of string theory by giving us the possibility of applying string theory mathematics to ordinary physics (condensed matter, quantum information, ...). My interested in the correspondence is twofold:

- fundational aspects: is holography a fundamental feature of the nature?
- developing non relativistic holography



#### PHILOSOPHY OF PHYSICS

I'm interested in exchanges between philosophy and physics in answering deep fundamental questions. In particular, the holographic principle can open up some relevant philosophical questions;

- ontology of a quantum space-time
- is gravity (and therefore space-time) emergent?



#### SCIENCE AND FAITH DIALOGUE

I'm interested in an organic vision on the world where teology and natural sciences can contribute in a Trinitarian relationship (unity in diversity), developing a Trinitarian ontology. Scientific theories can help to reformulate teological doctrines. Philosophy, in particular philosophy of science, is the mediator between empirical sciences and theology.