Changkai Zhang

Curriculum Vitae

Education History

2019 – present **Master of Science**, *Ludwig-Maximilian-Universität München*, München.
Specialized in Theoretical Physics.

2016 – 2018 **Bachelor of Science**, *The University of Manchester*, Manchester.
Specialized in Theoretical Physics. Grading – First Class Honours.

2015 – 2018 **Bachelor of Science**, *Beijing Normal University*, Beijing.
Specialized in Physics. Grading – 87/100

2014 – 2015 **Bachelor of Science**, *Beijing Normal University*, Beijing.
Specialized in Computer Science.

BSc Dissertation

Title **On the AdS/CFT Correspondence**

Supervisor Professor Niels Walet

Description This is a brief review of the AdS/CFT correspondence, including the original derivation and a modern implication of the AdS/CFT correspondence with a revealing introduction of the concepts used. Also presented are checks of this correspondence and how it can be applied in areas like computing the entanglement entropy.

Publications

2018 **Changkai Zhang**, Quadratic Lagrangian and Spin-statistics Connection (preprint), 2018, DOI: 10.13140/RG.2.2.28302.87367

2017 **Changkai Zhang**, On the AdS/CFT Correspondence (BSc dissertation), 2017, DOI: 10.13140/RG.2.2.26359.93603

Research Experience

2016 – 2017 **Path Integral Quantization of Fields**.
One-year undergraduate research training program. Leader of a team of 3 members. Document is hosted by Readthedocs, accessible via path-integral-project.rtfd.io

2014 – 2015 **Taiwan College-student Physics Tournament**.
Leader of the Beijing Normal University team, achieved 6 wins in total 7 rounds. Topics come from 28th IYPT: iypt.org/images/8/87/problems2015.pdf

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Independent Study

2016 – 2018 **Structure of Physics**.
Available via DOI: 10.13140/RG.2.1.1013.8004
The methodology and the construction of the fundamental theory of Physics. It is shown how to derive a physical theory based solely on mathematical requirements on self-consistency.

2015 – 2018 **Constructive Physics**.
Available via DOI: 10.13140/RG.2.1.1403.2881
An attempt to construct gauge theories in a logically self-contained formulation. It serves as a reference of the mathematical structure of the classical gauge field theory.

Coursework

2016 **Measurement of Compton Cross Section**.
Lab report on the measurement of the differential cross section of Compton scattering, available via DOI: 10.13140/RG.2.2.30861.23526

2018 **Nuclear and Particle Physics**.
Lecture note on PHYS30121 Introduction to Nuclear and Particle Physics at the University of Manchester, available via https://chx-zh.cc/NucParPhys-Online

Computer Skills

Language C/C++, Python, Haskell, Mathematica, LaTeX

Utilities Linux & CLI tools, Vector Graphics e.g. Illustrator & Gravit Designer

Algorithm Machine Learning, Deep Learning

Languages

Chinese First language, simplified & traditional

English Second language, oral & written, daily & academic

Deutsch Third language, beginner's level, oral & daily

Interests & Hobbies

Aviation All sorts of model aircraft, including fixed-wing aircraft, helicopters and rockets. Also interested in commercial flight safety.

Network A web server hosted by a Raspberry Pi and several cloud computing instances running various web services.

Music & Art Chinese traditional-style music & traditional instruments. Graphic design and web front-end interface design.

PKM System Personal Knowledge Management, the methodology of managing computerized knowledge and creating efficient human-computer interaction.

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