

# Albert Zhou

BSc (Advanced Mathematics)

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## PERSONAL

Australian Citizen.

Enjoys rock climbing, cycling, choral singing.

Speaks conversational German

## EDUCATION

Aug 2019 – Karlsruhe Insitut für Technologie: PhD in neutrino-oscillation phenomenology, supervised by Prof. Schwetz-Mangold

Apr 2020 – Jul 2020 C1.1 Deutsch als Fremdsprache Kurs (Note 1.3; 93%)

Oct 2019 – Feb 2020 B2 Deutsch als Fremdsprache Kurs (Note 1.7; 90%)

21 Jul 2019 – 9 Aug 2019 Attended MITP Summer School 2019 on Non-perturbative Phenomena and the Early Universe

Oct 2018 – Jul 2019, Karlsruhe Insitut für Technologie: research project in theoretical cosmology, supervised by Prof. Klinkhamer

Mar 2014 – Nov 2017, University of Sydney: Bachelor of Science (Advanced Mathematics) (Honours) majoring in physics and pure maths

### **Honours year (2017) in physics**

Result: Honours Class I and the University Medal (Mark: 92.0)

Participated in Graduate Winter School on the Philosophy of Time

Wrote thesis on the electroweak phase transition in a Standard Model with hidden scale invariance, supervised by Archil Kobakhidze.

Won the Shiroki Prize for best Honours project

### **Third Year (2016)**

Annual Average Mark: 91.6

Undertook a project studying thermal field theory as precursor to Honours project

### **Second Year (2015)**

Annual Average Mark: 91.7

Undertook two projects: one in neutrino oscillations and one in spontaneous symmetry breaking as part of the Talented Student Program

Presented a two-hour seminar on the Dirichlet problem in harmonic function theory as part of the Special Studies Program for Mathematics

Won Norbert Quirk Prize for university maths competition

Achieved 99.0 in two maths subjects

### **First Year (2014)**

Annual Average Mark: 85.3

Undertook an undergraduate project in positron emission tomography.  
Won Norbert Quirk Prize for university maths competition.  
Studied maths, physics, chemistry, human biology and molecular biology.

2008 Feb – 2013 Nov, North Sydney Boys' High School

ATAR: 98.35

Achieved highest band in Maths Ext 2, 1 and Latin Cont, Ext

## RESEARCH EXPERIENCE

20 Nov 2016 – 20 Jan 2017, Summer Scholar at the Australian National University

Studied quantum integrable systems (1D Heisenberg spin chain, 2D lattice model of ice)

04 Mar 2016 – Nov 2016, Technical Assistant at NeuRA, providing mathematical consulting to the Herbert research group

Assisted in analysis of prophylaxis in haemophilia

20 Nov 2015 – 20 Feb 2016 Summer Scholar at University of Sydney

Studied quantum field theory (scalar field theory and quantum electrodynamics)

Studied Coleman-Weinberg mechanism in context of scale-invariance

## PUBLICATIONS

2020, Esteban I. et al.; "The fate of hints: updated global analysis of three-flavor neutrino oscillations"; *JHEP*, **09**, 178

2019, Klinkhamer, F. R. et al.; "Vacuum energy decay from a q-bubble"; *Physics*, **1**, 321-338..

2017, Kobakhidze A. et al.; "Low-temperature electroweak phase transition in the Standard Model with hidden scale invariance"; *Phys. Lett. B* **776** pp.48–53

2017, Herbert R. et al.; "Optimization of prophylaxis for hemophilia A"; *PLoS ONE* **13**(2): e0192783.

## Talks

Talk at GdR Neutrino Meeting 2020 (via Zoom because of COVID-19) <https://indico.in2p3.fr/event/22500/contributions/87768/>

## Other

2019, [Article](#) published on *New Matilda* about active labour market policy (jobs guarantee, in relation to *GetUp!*'s campaign)

2017, Acknowledged in preamble of *Quantum Field Theory for the Gifted Amateur* by Stephen Blundell and Tom Lancaster.

## PRIZES & AWARDS

- 2018, Awarded University of Sydney Academic Merit Prize
- 2018, Awarded the Shiroki Prize for best Honours project
- 2017, Awarded the University of Sydney Physics Foundation Scholarship No 3.
- 2017, Awarded Yim Family Foundation Scholarship by Faculty of Science at the University of Sydney (25000 AUD)
- 2016, Awarded Summer Research Scholarship at Australian National University
- 2016, Awarded University of Sydney Academic Merit Prize and placed on Dean's List of Excellence in Academic Performance
- 2015, Awarded two summer vacation scholarships at University of Sydney
- 2015, Awarded the Norbert Quirk Prize No. II Best Essay in a Mathematical Subject ([Sydney University Mathematics Society Problems Competition](#); also awarded best entry for problem 5)
- 2015, Awarded Dean's Scholarship in Science and Rolf Adams Prize No. III
- 2014, Awarded the Norbert Quirk Prize No. I Best Essay in a Mathematical Subject ([Sydney University Mathematics Society Problems Competition](#); also awarded best entry for problem 6), and placed on Dean's List of Excellence in Academic Performance
- 2013, [High Distinction](#) in UNSW Annual Mathematics Competition, Reserve Finalists in UNSW Prog-comp, Gold Award in National Latin Exam
- 2012, Distinction in UNSW Annual Mathematics Competition, Silver Award in National Latin Exam
- 2011, High Distinction in Australian Mathematics Competition, Third in Junior Division of UNSW Progcomp Open Round, Gold Award in National Latin Exam
- 2010, Prize Award in Australian Mathematics Competition

## EXTRACURRICULAR

- 2020 Mar –, Volunteering in the Volt Europa party on European policy (Global Balance policy facilitator)
- 2020, Text for Bernie 2020 Presidential campaign
- 2020 Jan –, Greenpeace Karlsruhe group: volunteering
- 2018 Jun – Sep, Volunteering with *GetUp!*: a community organisation working for democracy and social justice.
- 2018 Jun – Sep, Sung with St Thomas' Catholic Church in Willoughby.
- 2017 Dec 29 – 2018 Apr 16, Backpacking trip across Europe
- 2017 Dec, Participated in the Research Education and Development Retreat held at ANU's Kioloa campus.
- 2017, Sung in Science Revue's comedy show *Rational Treasure*, BarberSoc's performance *Get Pitch or Die Tryin'* (a capella), St. Paul's College choir (mostly polyphonic work).

2016 Dec, Participated in three-minute thesis competition at ANU. (Was one vote shy of people's choice award).

2016, Performed in two university choirs (the Musical Society and Madrigal Society).

2011 – 2013, Solved [254 problems](#) on the mathematical programming site [Project Euler](#).

## WORK

10 Oct 2020 –, Übungsleiter (tutorial head) for Modernrne Theoretische Physik IIIa: Statistische Mechanik

29 Oct 2019 – 04 Feb 2020, Tutor for Neutrino Physics at Karlsruhe Institut für Technologie (held tutorials and wrote some question sheets).

2017, Tutor at St. Paul's College and the School of Mathematics and Statistic in the University of Sydney

Last updated: November 24, 2020