




# Qingshan Yu

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## EDUCATION

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| <b>University of Sydney, School of Physics</b><br><i>PhD in Physics, Astrophotonics, Astronomical Instrumentation, Fibre Optics</i> <ul style="list-style-type: none"> <li>Supervisor: Sergio Leon-Saval, Joss Bland-Hawthorn, Simon Ellis (AAO-Macquarie)</li> <li>Funded by Dean's International Postgraduate Research Scholarship (Faculty of Science)</li> </ul> | 2018 Oct - 2024 May  |
| <b>Nanjing University, School of Astronomy and Space Science</b><br><i>Bachelor in Space Science and Technology</i> <ul style="list-style-type: none"> <li>Nanjing University Outstanding Graduates, 2018</li> </ul>   | 2014 Sep - 2018 July |

## PROFESSIONAL EXPERIENCES

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| <b>Space Science Institute (SSI), Macau University of Science and Technology</b><br><i>Postdoctoral Researcher</i> <ul style="list-style-type: none"> <li>Instrumentation on Gamma Ray Detection and Astrophotonics</li> </ul>                          | July 2025 - Now<br><i>Postdoctoral</i>       |
| <b>School of Physics, University of Sydney</b><br><i>Photonics Instrument Scientist</i> <ul style="list-style-type: none"> <li>Trace-level Gas Detection via Wavelength Modulation Spectroscopy with Aperiodic Fiber Bragg Grating Sensors</li> </ul>   | June 2024 - June 2025<br><i>Postdoctoral</i> |
| <b>Research and Prototype Foundry, University of Sydney</b><br><i>Technical Officer</i> <ul style="list-style-type: none"> <li>Advanced Fiber Bragg Grating (FBG) Facility, Aperiodic FBG Design &amp; Fabrication, Fiber DFB Laser Assembly</li> </ul> | Feb 2023 - June 2024                         |

## PUBLICATIONS

### Academic Papers

- Yu, Q.**, Sergio Leon-Saval, Peter Tuthill, Maryanne Large. Trace-level Gas Detection via Wavelength Modulation Spectroscopy with Aperiodic Fiber Bragg Grating Sensors (**in prep**)
- Yu, Q.**, et al. Designing OH-Suppression Aperiodic Bragg Gratings: A Software Tool (**in prep**)
- Norris, B., Gross, S., Leon-Saval, S. G., Betters, C. H., Bryant, J., **Yu, Q.**, ... & Bland-Hawthorn, J. Astrophotonics-current capabilities and the road ahead[J]. *Applied Optics*, 2024, 63(24): 6393-6412.
- Yu, Q.**, et al. Inverse design and optimization of an aperiodic multi-notch fiber Bragg grating using neural networks[J]. *Applied Optics*, 2024, 63(14): D50-D58.
- Yu, Q.**, et al. Aperiodic Multi-notch FBG Filters for Astronomical Positronium Detection, AOPC 2023: Novel Technologies and Instruments for Astronomical Imaging and Spectroscopy. Vol. 12965. SPIE, 2023.
- Yu, Q.**, Edvell G., Luo L., et al. A Complete Design Procedure of an Aperiodic Multichannel FBG for Astronomical OH Suppression[J]. *Journal of Lightwave Technology*, 2023.
- Robertson G, Ellis S, **Yu, Q.**, et al. Seeking celestial positronium with an OH-suppressed diffraction-limited spectrograph[J]. *Applied Optics*, 2021, 60(19): D122-D128.
- Yang W Z, Xu D W, **Yu, Q.**, et al. Relativistic time transfer for a Mars lander: from Areocentric Coordinate Time to Barycentric Coordinate Time[J]. *Research in Astronomy and Astrophysics*, 2017, 17(8): 088.
- Xu D W, **Yu, Q.**, Xie Y. Relativistic time transfer for a Mars lander: from proper time to Areocentric Coordinate Time[J]. *Research in Astronomy and Astrophysics*, 2016, 16(10): 155.

### Doctoral Dissertation

- Yu Q.** FBGs in Specialty Optical Fibres for Astrophotonics[D]., 2023.

## AWARDS

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**Research Portfolio SHINE! Award, University of Sydney**

2023

Innovation Award - Research & Prototype Foundry - **Qingshan Yu**, Goran Edvell, Liguu Luo and Sergio G. Leon-Saval

## TEACHING

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**Tutoring, University of Sydney**

2022 - 2023

PHYS1003/1004 - First Year Physics Lab

OLEO1635/1637/1639 - Astronomy: Night Viewing Session

## ORAL PRESENTATIONS

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**The 25th Congress of the Australian Institute of Physics**

Dec 2024

Oral Presentation, *Aperiodic fiber Bragg gratings for astronomy J band OH suppression*

**ANZCOP-AIP Summer Meeting 2023**

Dec 2023

Oral Presentation, *Inverse Design of Aperiodic Multi-notch Bragg Gratings Using Neural Networks*

**12th Applied Optics and Photonics China (AOPC 2023)**

July 2023

Oral Presentation, *Multi-notch FBG Filters for Astronomical Positronium Detection*

## PEER REVIEW

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Reviewer Activities for Journal of **Optics and Laser Technology**, **Journal of Lightwave Technology**

## OUTREACH

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**Optica/SPIE Student Chapter**

University of Sydney Optica/SPIE Student Chapter *2019 - 2020*

**Translation**

Co-translated (EN - CN) an astronomy book titled *Astronomical Discoveries You Can Make, Too!*