# ALEXIS LAU

alexis.lau@lam.fr


## EDUCATION

**Laboratoire d'Astrophysique de Marseille (LAM), France** *Oct 2020 - Present*
PhD

**University of Exeter, UK** *Sep 2016 - Jul 2020*
MPhys Physics with astrophysics
First Class Honours

## RESEARCH EXPERIENCE

**Direct Imaging of Exoplanets and Circumstellar Disks** Jan 2019 - Present
*Researcher - Masters' Project* *University of Exeter*

- Developing and applying a pipeline for automated data analysis and candidates search in Python
- Searching and characterising candidates with Python and IDL
- Computing statistical analysis of our imaging survey in Python
- Comparing outcomes from different post-processing algorithms in Python

**How magnetic geometries influences the amount of open flux** Jun - Sep 2019
*Researcher* *University of Exeter*

- Built magnetic field geometries by mixing higher order of modes with dipole in C
- Implemented my setup to the existing magneto-hydrodynamics model and produced simulations in C
- Created a pipeline in Python for extracting and analysing data from simulations of stellar wind

**Graphene Water Filters** Sep 2018 – Sep 2019
*Researcher* *University of Exeter*

- Produced graphene filters in a laboratory
- Analysed the properties of the filter by Raman Spectroscopy
- One of the top 20 UK team in "UK Global Grand Challenges Student Competition 2019", organised by the Royal Academy of Engineering

**Searching and Analysing Candidates data from a High Contrast Imaging Survey using Keck** Sep 2018– Feb 2019
*Researcher* *University of Exeter*

- Completed image pre–processing for most of the dataset
- Analysed H, K and L band data from W.M. Keck Observatory in Python and IDL
- Improved the structure of the pipeline for image analysis

**Calibrating Contrast curve and Processing data from Keck Observatory** May – Jul 2018
*Researcher* *University of Exeter*

- Calibrated contrast curves by performing photometry on the reference star in Python
- Modified existing data analysis pipeline in Python

## SKILLS

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|---|---|
| **Programming Languages** | Python, C, IDL, SQL, Matlab, Octave |
| **Other** | Latex, MS Office, Photoshop, Lightroom, Unix, Windows |
| **Languages** | *Native*: Cantonese; *Fluent*: English and Mandarin; *Basic*: French |

## AWARDS

Royal Astronomical Society Undergraduate Research Bursaries for "Calibrating Contrast curve and Processing data from Keck Observatory"

## OUTREACH EXPERIENCES

**Space:Exe** Sep 2016 – 2020
*President (2019–2020), Science Officer (2018–2019), Member(2016–2020)* *University of Exeter*

- Local Organising Committee of "Space:Exe Space Science and Astronomy Conference" (2018, 2019, 2020)
- Organising and managing scientific projects, e.g. XRT-C, an awarded students' project for building a 4.5m radio telescope in Cornwall
- Participating in the Sidmouth Science Festival
- Organising community stargazing events
- Speaker of "Space:Exe Space Science and Astronomy Conference" (2018, 2019)

**Hong Kong Astronomical Society** Dec 2012 – Sep 2018
*Student Volunteer* *Hong Kong Astronomical Society*

- Local Organising Committee and volunteer of "HKAS Summer Astronomical Camp" (2012 – 2018)
- Organising community stargazing events and sidewalk astronomy
- Interviewed by TVB Hong Kong, talked about life being an astrophysics undergraduate, in "Info of academia without broader: Astronomy"
- Invited to share my experience with student participants, "Life of being astrophysics student and experience from summer research internship", in 2018
- Speaker of "Hong Kong Space Museum: Astronomical Carnival" (07/2017, 07/2018)

## OTHER INTERESTS

Taekwondo, hiking, landscape photography, astrophotography

## REFERENCES

**Prof Sasha Hinkley** email: S.Hinkley@exeter.ac.uk
*Master project supervisor* *University of Exeter*

**Prof Sean Matt** email: S.Matt@exeter.ac.uk
*Supervisor of "How magnetic geometries influences the amount of open flux"* *University of Exeter*

**Dr Pablo Loren-Aguilar** email: P.Loren-Aguilar@exeter.ac.uk
*Tutor* *University of Exeter*

**Dr Victor See** email: W.See@exeter.ac.uk
*Supervisor of "How magnetic geometries influences the amount of open flux"* *University of Exeter*