

# Nour SKAF

**Research interests** : Exoplanet, Optical Instrumentation, Adaptive Optics, High Contrast Imaging, Observation and Characterisation of Extrasolar Systems, Atmospheric Characterisation, Debris Disks.

**Date of birth** : 09/13/1994 – **Citizenship** : French. **Pronouns** : She/her/hers

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[nourskaf.org](http://nourskaf.org)

## 1 PROFESSIONAL EXPERIENCES

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**PhD candidate** – **LESIA/Observatoire de Paris** (France) **Since Sept. 2019**  
**Subaru Telescope, SCEXAO** (Hawaii, USA) *Self-optimisation of Adaptive Optics (AO) for the study of exoplanets in direct imaging*; supported by NASA grant # 80NSSC19K0336  
Supervisors : Anthony Boccaletti, Olivier Guyon

**Invited PhD student** – **Center for Space Exochemistry data**  
**University College London** (London, United Kingdom) **Since Sept. 2019**  
Mentor : Giovanna Tinetti

**Masters thesis** – **University College London** (London, United Kingdom) **Summer 2019**  
*Detecting exoplanets via direct imaging on ground-based telescope using deep learning.*  
Supervisors : Ingo Waldmann, Gordon Yip, Nikos Nikolaou

**Student Researcher, Optical engineering** – **NASA Ames Research Center - Breakthrough Initiatives Foundation** (Mountain View, Silicon Valley Californie, USA) **Été 2018**  
*Optical hardware engineering for the Toliman space telescope proposal, for Alpha Centauri.*  
Superviseur : Eduardo Bendek

**Student Researcher, Software engineering** – **Télescope Subaru, NAOJ** (Hawaii, USA) **2017**  
*The adaptive optics instruments and their real time system for exoplanets.* **8 months**  
Supervisor : Olivier Guyon

**Student Researcher, Quantum optics** – **Pierre Aigrain Lab, ENS Ulm** (France) *Quantum cascade lasers, Tera-Hertz - Complex optical bench engineering, electronics and optronics.* **2016**

**Student Researcher, Astrophysics** – **Birmingham University** (United Kingdom) **Summer 2014**  
*Analysis of several groups of galaxies from GAMA to determine their varialization state.*

**Student Researcher, Astrophysics** – **GEPI - Observatoire de Paris** (France) **Summer 2014**  
*Visible galaxies spectroscopy; galaxies' composition, classification.*

**Private Tutoring in Maths and Physics** **2013 to 2017**  
*From middle school to undergraduate level.*

**Facilitator, Astronomy for general public - professional** **Summers 2012-2013**  
**Saint-Michel-l'Observatoire Astronomy Center**, partnership with the Haute-Provence Observatory CNRS.

## 2 FORMATION

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**Carl Sagan Workshop** – **Virtual**

*Circumstellar Disks and Young Planets.*

**July 2021**

**Summer School ARES – ESA’s Ariel Summer School**

Biarritz, France

*Atmospheric characterisation of exoplanets for the Ariel space mission*

**October 2019**

**Doctoral school training – Artificial Intelligence for Astrophysics**

Virtual

**MSc – University College London**

London, United Kingdom

Fondamental Physics masters

**September 2019**

*Scientific : Authoring a literature review on the origin of hot Jupiters - Supervisor : James Owen.*

*Entrepreneurship for physicists : Inventing, designing and building the first prototype of a gaze-orientable head lamp for medical use.*

**Engineering degree – Institut d’Optique Graduate School**

Palaiseau, France

Optics and Photonics

**September 2019**

**Summer School in Adaptive Optics – Santa Cruz University**

Santa Cruz, USA

**August 2017**

**BSc – Université Pierre et Marie Curie (UPMC) - Sorbonne, PSL**

Paris, France

Fundamental Physics

**September 2015**

**French Baccalaureate, Physics major passed with honors –**

Cavaillon, France

**2012**

### 3 GRANTS & AWARDS

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**L’Oréal-UNESCO prize for Women in Science - Rising Talent** (official on 10/7/2021) **2021**  
15,000 Euros

**OCAV Doctoral Research Fellowship** (*Origins and Conditions of Apparition of Life*) **2019**  
3 years

**Grants from the Astrobiology Center of Japan** for two international conferences **2019**

**University scholarship** of the Institut d’Optique Graduate School – 2 years **2015-2016**

Winner of the competition ”**Speed Science**” of the French Academy of Sciences **2014**

**University scholarship** from Sorbonne University for an international internship **2014**

### 4 OUTREACH & TEACHINGS

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Over 30 outreach talks with various associations, cultural centers, universities and schools.

**Mission de vulgarisation scientifique en Guyane**

*Guiana to the Stars*

2 weeks of outreach in French Guiana : activities in several schools throughout the state, public talks, and amateur night observations, on the opportunity of the James Webb space telescope launch. **December 2021**

**Selection of lecture talks**

— *Direct imaging of exoplanets*

Invited lecturer in Giocanna Tinetti’s exoplanet course at UCL, UK.

**February 2021**

- *Exoplanets and Ocean Worlds*- Invited lecturer in an oceanography course in a community college in California, USA. **February 2021**

### Selection of outreach talks

- *Why explore space?* - association "Jeunes IHEDN". **April 2021**
- *Initiation to Astronomy*- cultural center of Villeneuve d'Ascq. **December 2019**

## 5 Observing experience

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**2+ years of engineering and science nights with the SCEXAO instrument at the Subaru Telescope.**

### Accepted proposal :

- HD 149162 and LkCa 15 "Investigating planet formation in two benchmark transitional disks" (PI : N. Skaf, S21B)

## 6 SCIENTIFIC CONFERENCES

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### Conference talks

- EPSC Sept. 2020 : "ARES. II. Characterizing the Hot Jupiters WASP-127 b, WASP-79 b, and WASP-62b with the Hubble Space Telescope"
- WFS 2020- Oct. 2020 : "Dr WHO : a self-automatisation algorithm for high contrast imaging."
- Ariel Consortium Meeting Oct. 2020 : "Unveiling the atmospheric compositions of the hot Jupiters WASP-127b, WASP-79b, WASP-62b."
- ARES Day - Nov 2020 : "Diaries from TauREx."
- Direct Imaging Tech Talk Feb. 2021 : "Image-base adaptive optics wavefront sensor referencing : a method to compensate NCPA"
- SPIE Optics and Photonics - Techniques and Instrumentation for Detection of Exoplanets X - Aug 2021 "High contrast imaging wavefront sensor referencing from coronagraphic images."
- Wavefront sensing in the VLT/ELT era VII - Dec 2021 "High contrast imaging wavefront sensor referencing from coronagraphic images."

### Posters

- Exoplanet III 2020 : "Characterizing the Hot Jupiters WASP-127 b, WASP-79 b, and WASP-62b."
- Ariel Consortium Meeting Jan. 2020 : "Characterizing the Hot Jupiters WASP-127 b, WASP-79 b, and WASP-62b."
- Ariel Consortium Meeting Oct. 2020 : "Unveiling the atmospheric compositions of the hot Jupiters WASP-127b, WASP-79b, WASP-62b."

### Journal Club

- LESIA's Astro-café : "Introduction to Machine Learning and Pushing the limits of exoplanets discovery via Direct Imaging."

**Initiator & organiser of the 1st international workshop on AI for AO - 3 days May 2020 : 40 participants, 9 universities.**

## 7 ASSOCIATIONS, HOBBIES, LANGUGES

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**Associations :** French Association of Women and Sciences; French Society of Astronomy.

**Voyages :** Europe, Asia, Africa, North America, Oceania. 35 countries

**Sports :** outdoor sports, scuba diving (PADI open water), free diving, yoga, surf.

**Photography :** landscapes and night sky pictures.

**Languages :** French (mother tongue), Anglais (bilingual), Spanish, Italian, Arabic (classical and lebanese dialect) (beginner to intermediate).