

## **Project list (updated 8 February 2018)**

These are the proposed research projects for LEAPS 2018. Please note that not **all** projects will go ahead and some may still be added in the near future. Final funding decisions lie with the Faculty sponsors. And please make a note that if you are interested in an ESA project, to check if your state is an ESA member or affiliate state.

### **Low-frequency VLA observations of a massive colliding galaxy cluster**

Supervisor: [Rienout van Weeren](#)

Type of project: Observational, galaxy clusters, radio observations, particle acceleration

[More info](#)

### **Characterizing protoplanetary disks; Initial conditions for planet formation**

Supervisor: [Schuyler Wolff](#)

Type of project: Modeling; planet formation, circumstellar disks

[More info](#)

### **Investigating the accuracy of SED fitting codes in constraining galaxy properties in the era of MUSE and JWST**

Supervisor: [Themiya Nanayakkara](#)

Type of project: Modeling, galaxies, SED fitting

[More info](#)

### **How is galaxy color tied to dark matter?**

Supervisor: [Mohammadjavad Vakili](#)

Type of project: Observational; galaxies, dark matter

[More info](#)

### **Exploring the composition of the beta Pic debris disk in the far-UV**

Supervisor: [Paul Wilson](#)

Type of project: Observational; debris disks, Hubble, exocomets

[More info](#)

### **Telling discs from mergers with ALMA**

Supervisor: [Matus Rybak](#)

Type of project: Simulation; high-redshift, ALMA, galaxies, star formation

[More info](#)

### **Early evolution of embedded proto-clusters**

Supervisor: [Alvaro Hacar](#)

Type of project: Observational; star-formation, radioastronomy, ALMA

[More info](#)

### **Studying galaxy mergers using the deep learning approach**

Supervisor: [Maxwell Cai](#)

Type of project: Modeling, simulations

[More info](#)

### **Observing planet-forming disks: linking ALMA to JWST**

Supervisor: [Daniel Harsono](#)

Type of project: Database mining, observational, star/planet formation

[More info](#)

### **The dynamical origin of the flattening of globular clusters**

Supervisor: [Alice Zocchi](#)

Type of project: Data analysis, modelling, ESA

[More info](#)

### **Ultra-deep spectroscopy with MUSE**

Supervisor: [Michael Maseda](#)

Type of project: Observational, spectroscopy, galaxies

[More info](#)

## **Evaluating large-scale public engagement programmes and understanding grassroots participation**

Supervisor: [Jorge Rivero-Gonzalez](#)

Type of project: Science communication research

[More info](#)

## **Surface characterization of ancient terrains on Mars using orbital imaging datasets**

Supervisor: [Ottaviano Ruesch](#)

Type of project: Image processing, remote sensing, planetary science, ESA ExoMars, ESA

[More info](#)

## **Properties of radio sources in different cosmological environments**

Supervisor: Francesco de Gasperin

Type of project: Observational

[More info](#)

## **Corroborating lunar impact flash locations with evidence in visible and infrared observations from Lunar Reconnaissance Orbiter**

Supervisor: Chrysa Avdellidou

Type of project: Computational, ESA

[More info](#)

## **Unbiasing gravitational lensing shear**

Supervisor: [Arun Kannawadi-Jayaraman](#)

Type of project: Galaxy image simulations, observations

[More info](#)

## **Enabling high-priority astronomy for miniaturized satellites**

Supervisor: [Christian Fuchs](#)

Type of project: Instrumentation, satellite miniaturization, payload data handling, data processing, FPGA, microcontroller, Cubesats

[More info](#)

## **Photochemistry in the atmospheres of Hot Jupiters**

Supervisor: [Alex Cridland](#)

Type of project: Theoretical; chemical modeling, synthetic spectra, exoplanetary atmospheres

[More info](#)

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Please note that the ESA projects are only available for students from ESA member or affiliate states (Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, the United Kingdom, and Canada). Students from Cyprus, Estonia, Hungary, Latvia and Slovenia (affiliate members) can also apply for ESA projects.