# Dr. Rana Ezzeddine

**Assistant Professor**

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## EMPLOYMENT

**Assistant Professor** — Jan 2020 - present
**Department of Astronomy,**
**University of Florida**
Gainesville, FL

**Postdoctoral Fellow** — 2016-2019
**Joint Institute for Nuclear Astrophysics –**
**Center for the Evolution of Elements (JINA-CEE)**
Kavli Institute for Astrophysics and Space Research
Massachusetts Institute of Technology
Cambridge, MA, USA

## EDUCATION

**Ph.D in Physics** - Université de Montpellier, France — 2012-2015
**Master of Sciences in Astrophysics** — 2010-2012
*Joint degree*: Notre Dame University, Lebanon
& Université de Saint Joseph, Lebanon
**Bachelor of Sciences in Physics** - Lebanese University, Lebanon — 2005-2008

## AWARDS AND GRANTS

**Heising-Simons Physics Research Fellowship** - MIT — 2019
**Co-I. NASA Hubble Space Telescope** - GO-15951 — 2019-2023
**Co-I. NASA Hubble Space Telescope** - GO-15657 — 2018-2022
**Co-I., NASA Hubble Space Telescope** - GO-14151 — 2016-2019
**JINA-CEE postdoctoral fellowship** - MSU/MIT — 2016-present
**IAU symposium 334 poster 1st prize award** — 2017
**IAU travel grant for Symposium 334** — 2017
**MIT Spot Award** — 2017
**PHC CEDRE grant (France)** - Project number 32919SL: 3400 € — 2015
**1M CPU hours** - FRANCE-GRILLES/DIRAC grid — 2014-2015
**University of Montpellier PhD fellowship** — 2012-2015
**CNRS-Lebanon PhD fellowship** — 2012-2015
**Masters Graduate Fellowship** - Notre Dame University, Lebanon — 2011-2012

## TEACHING & MENTORING

**Mentoring of Graduate research** — 2020-present
Shivani Shah (*PhD student, University of Florida*)
Yangyang Li (*PhD student, University of Florida*)
Nicholas Barth (*PhD student, University of Florida*)
Francisco Mendez (*PhD student, University of Florida*)

**Graduate level Teaching**

AST 6245 : Radiative Transfer & Stellar Atmospheres — Fall 2021
(*University of Florida, Gainesville, FL*)

AST 6215 : Stars and the Galaxy — Spring 2020, Spring 2021
(*University of Florida, Gainesville, FL*)

**Mentoring of undergraduate & highschool research**

*University of Florida, Gainesville, FL*

- Jeremy Kowkabany — Spring 2020 - present
- Zoe Hackshaw — Spring 2020 - present
- Natalia Wolschlager — Spring 2020 - present
- Jonathan Roberts — Fall 2021
- Victoria Moore — Spring 2021
- Daniel Warschofsky — Spring 2021 - present
- Nima Aria — Summer 2021 - present

*Massachusetts Institute of Technology, Cambridge, MA*

- Fouad Chahrour (*Fullbright Fellow, Germany/Harvard*) — 2018 - 2019
- Subhash Kantamneni (*RSI highschool student summer research*) — Summer 2019, *Final Presentation (Link)*
- Xinmiao (Anna) Hu (*Undergraduate exchange summer research, Imperial College London/UK*) — Summer 2019

**Summer School Lectures** — 2017

MIT Undergraduate Research Opportunities Program students (UROP)
*"Introduction to Radiative Transfer in Stellar Atmospheres"*,
MIT, Cambridge, MA

**Undergraduate Physics Teaching Fellow** — 2011-2012

Astronomy 101: "Introduction to the Solar System"
Notre Dame University, Louaize, Lebanon

**General Physics Lab Teaching Fellow** — 2011-2012

Notre Dame University, Louaize, Lebanon

**Electricity and Magnetism Physics Lab Teaching Fellow** — 2011-2012

Notre Dame University, Louaize, Lebanon

**Highschool Physics Instructor** — 2008-2012

- Beirut Modern School, Beirut, Lebanon
- Amjad College, Beirut, Lebanon

COMPETITIVELY AWARDED OBSERVING TIME

**Co-Investigator** - Keck Telescope, Hawaii (0.5 nights total) — 2021
*"New Uranium Lines for Nucleocosmochronometry"*

**Principal Investigator** - Gran Telescopio Canarias (50 hrs total) — 2019-2020
*"Characterizing r-process nucleosynthesis models of enhanced r-process stars"*

**Co-Investigator** - Gran Telescopio Canarias (12 hrs total) — 2019-2020
*"Characterizing Extremely Metal Poor Stars from DESI"*

**Co-Investigator** - McDonald Observatory 2.7 m Telescope (12 nights) — 2019-2020

**Co-Investigator** - Hubble Space Telescope (GO-15951, 17 orbits) — 2020-2022
*"Testing r-process nucleosynthesis models with two r-process enhanced stars"*

**Co-Investigator** - Hubble Space Telescope (GO-15657, 37 Orbits) 2019-2021
*"HD 222925: A unique opportunity to study the full range of nuclei produced by a single r-process event"*
**Principal Investigator** - Magellan Clay Telescope (>30 nights total) 2016-2019
*"Characterizing the population of r-process stars in the Galactic Halo"*
**Co-Investigator** - Magellan Clay Telescope (2 nights) 2018
*"J0023−0307: A rare second-generation star with [Fe/H]< −6"*
**Co-Investigator** - Magellan Clay Telescope (8 nights) 2016-2017
*"Discovering the most metal-poor stars from the SkyMapper Survey"*
**Co-Investigator** - Hubble Space Telescope (GO-14151, 24 Orbits) 2015-2018
*"Constraining Pop III supernova energies and the formation of the first low-mass stars with the iron-poor star HE 1327−2326"*

INVITED PRESENTATIONS

**2021**

**Astronomy Seminar** (Virtual) (*Université Libre de Bruxelles, Brussels, Belgium*)
**Physics Colloquium** (Virtual) (*High Altitude Observatory , CO*)

**2020**

**AAS Journal author Youtube series** (*with ApJ editor Frank Timmes* )
**Astrophysics Colloquium** (Virtual) (*University of New South Wales Sydney*)
**Astrophysics Colloquium** (Virtual) (*Carnegie Observatories, CA*)
**Online Webinar** (*JINA-CEE, Link)*

**2019**

**Astrophysics Colloquium** *(Massachusetts Institute of Technology, MA)*
**Astronomy Seminar** *(Brandeis University, MA)*
**Astronomy Seminar** *(University of Texas A&M, TX)*
**Astronomy Seminar** *(University of Notre Dame, IN)*
**Astrophysics Colloquium** *(University of Florida, FL)*

**2018**

**Lunch Seminar** *Harvard CfA, Institute for Theory & Computation (ITC), MA*
**Astrophysics Seminar** *Pontifical Catholic University of Chile, Santiago, Chile*
**Eleventh International Conference on Atomic and Molecular Data and Their Applications** - *Cambridge, MA*
**The Metal poor Galaxy Meeting** - *Ringberg, Germany*
**FRIB and the GW170817 kilonova** - *Lansing, MI*

**2015-2017**

**Physics Colloquium** - *American University of Beirut, Beirut, Lebanon*
**Stellar Astrophysics Seminar** - *University of Heidelberg, Heidelberg, Germany*
**JINA-CEE online webinar** - *(Link)*
**Astrophysics Seminar** - *Michigan State University, East Lansing, MI*
**Astrophysics Seminar** - *Université Libre de Bruxelles, Brussells, Belgium*

## CONTRIBUTED PRESENTATIONS

**2019**

**CEMP stars as probes of First stars Nucleosynthesis** - *Geneva, Switzerland*
**JINA-CEE 2019 Frontiers meeting** - *East Lansing, MI*

**2018**

**Galactic Archeology as time machines to the First stars** - *Tokyo, Japan*
**Cool stars 20** *(plenary session, Link)* - *Boston, MA, USA*

**2017**

**IAU symposium 334 1st prize poster award** - *Potsdam, Germany*
**JINA-CEE Frontiers meeting (Junior workshop)** - *Lansing, MI, USA*

**2013- 2016**

**MIT Kavli Institute postdoc symposium** - *MIT, Cambridge, MA*
**JINA-CEE Frontiers meeting** - *South Bend, IN*
**The Milky Way's History WE-Heraeus-Seminar** - *Bad Honnef, Germany*
**Annual meeting of the French Society of Astronomy & Astrophysics** - *Montpellier, France*

## PROFESSIONAL ACTIVITIES

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| **External Review** - *Hubble Space Telescope Cycle 29* | *2021* |
| **Review Panel** - *NASA TCAN* | *2020* |
| **External Review** - *NASA Postdoctoral Program* | *2019-2020* |
| **Institute Representative** - *GTC User's committee* | *2020-present* |
| **Review Panel** - *Hubble Space Telescope Cycle 28* | *2020* |
| **Review Panel** - *NASA Astrophysical Theory Program* | *2019* |
| **Review Panel** - *Hubble Space Telescope Cycle 27* | *2019* |
| **External Review** - *NASA FINESST* | *2019* |
| **Referee** - *IOP, A&A, Nature Astronomy & Springer Journals* | *2017-present* |
| **Review Panel** - *Heising Simmons Physics Research Fellows, MIT* | *2018* |
| **Seminar organizer** - *Brown Bag Lunch talk series, MIT* | *2017-2019* |
| **LOC** - *JINA-CEE 2019 frontiers meetings* | *2018-2021* |
| **LOC** - *Cool stars 20* | *2018* |
| **External Review**, *Canada-France-Hawaii Telescope* | *2017* |
| **Organizer** - *Postdoc lunch series, MIT* | *2016-2017* |
| **Co-organizer** - *MIT Kavli Institute postdoc symposium* | *2016* |

## OUTREACH & SCIENCE COMMUNICATION

**Leading Roles**

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|---|---|
| **Co-creator, organizer** - *Astronomy on Tap, Boston Series* | *2017-present* |
| **Co-creator** - *Lebanese Astronomical Society* | *2020-present* |
| **Co-creator** - *Lebanese Astronomy group* | *2006-present* |
| **Co-organizer** - *Beirut Science Days* | *2006-2012* |

**Events/ Public Talks**

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|---|---|
| **Speaker, Lecturer** - *8th grade Western Pines Middle Astronomy (virtual)* | *2021* |
| **Speaker** - *"Galactic Getaway", Science in Every Florida School (virtual)* | *2020* |
| **Panelist, Speaker** - *Festival d'Astronomie de Fleurance (virtual)* | *2020* |
| **Speaker** - *Moon Shots: Apollo 11th 50th anniversary (MIT Museum)* | *2019* |
| **Speaker** - *"Exciting Astronomy Questions" (Tokyo, Japan)* | *2018* |

**Speaker** - *Science Café (Beirut, Lebanon)* *2017*
*"Where do elements in the Universe come from?"*
**Speaker** - *Astronomy on Tap (Boston, MA)* *2017*
*"How is gold (and other heavy elements) made in stars?"*
**Speaker** - *Astronomy on Tap (Cambridge, MA)* *2017*
*"How to find the oldest stars in the Universe?"*
**Speaker** - *"How to become a scientist?" (Potomac High school)* *2017*
**Organizer** - *International year of Astronomy 2009 (Lebanon)* *2009*
**Organizer** - *100 hours of Astronomy (Lebanon)* *2009*

MEDIA & PRESS RELEASES

**Florida Museum of Natural History** – *2020*
*Indiana Jones of the Galaxy Teaches Students About the Wonders of the Night Sky*
**Pour La Science** – *2019*
*Des jets puissants pour la mort des premières étoiles*
**Science et Vie** – *2019*
*Astrophysique : l'explosion des premières étoiles a nourri l'Univers*
**Scientific American** – *2019*
*The Universe's First Stars Exploded in Strange Ways*
**IPMU Press Release** – *2019*
*Explosions of universes first stars spewed powerful jets*
**SyfyWIRE** – *2019*
*When the first stars in the Universe exploded, they *really* exploded*
**Newsweek** – *2019*
*The Universe's First Stars Exploded, Sending Out Powerful Jets That Produced New Ones*
**TechTimes** – *2019*
*First Stars In The Universe Were Short-Lived And Ejecting Giant Jets Of Matter*
**Astronomy Magazine** – *2019*
*The universe's first supernovae spewed jets of material into nearby galaxies*
**MIT Press Release** – *2019*
*Explosions of universes first stars spewed powerful jets*
**Interviewee** *"Cosmic Front: Next Generation" documentary series* *2017*

LANGUAGES

*Arabic (native): read, written, spoken*
*English (quadrilingual): read, written, spoken*
*French (quadrilingual): read, written, spoken*
*German (quadrilingual): read, written, spoken*
*Spanish : read and spoken*

LIST OF PUBLICATIONS

Full list of publications can be accessed at:
- NASA ADS *(Link)*
- Google Scholar *(Link)*