

Mid-Year Report

First Arab Winter School for Astrophysics (FAWSA)



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Introduction

FAWSA will provide a platform for astrophysics knowledge sharing, triggering collaborations between fellow Arab astrophysicists, and building a strong professional Arab community in the field.

The scope of the winter school covers the following fields:

- **Solar System and Exoplanets**
- **Solar Physics**
- **Galactic Astronomy:** Stars, Stellar Clusters, Nebulae, SNR and ISM
- **Extragalactic Astronomy:** Galaxy Formation and Evolution, and Cosmology
- **Observational Astronomy:** HRA, Adaptive Optics, Site Testing.
- **Technical Tools:** Python, IDL, iraf, and Virtual Observatory

Scientific Program

We were able to invite and secure participation from leading international institutions to provide lectures about various topics of astrophysics to many outstanding students selected from 10 Arab countries. Below is the scientific program of FAWSA.

Time	Monday 28 Nov	Tuesday 29 Nov	Wednesday 30 Nov	Thursday 1 Dec.	Friday 2 Dec.	Saturday 3 Dec.
8:30- 10:00	Opening Ceremony and Keynote Speech	Introduction to Cosmology	Optical & Infrared Astronomy	Gamma Universe	High Energy Astrophysics	Oukaimeden Observatory Visit
10:00 – 10:15	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	
10:15 – 11:15	Introduction to Research in Astrophysics	Extragalactic Astronomy	Image Processing	Space Physics	Standard Model and Beyond	
11:15 – 12:45	Theoretical Spectroscopy	Theoretical Spectroscopy	Exoplanets	Space Physics	Solar Physics	
12:45 - 14:15	Break & Lunch	Break & Lunch	Break & Lunch	Break & Lunch	Break & Lunch	
14:15 – 15:45	Galactic Astronomy	Galactic Astronomy	Social Event (Medina Visit)	Earth and Planetary Atmospheres	Solar Physics	
15:45 – 16:00	Coffee Break	Coffee Break		Coffee Break	Coffee Break	
16:00 – 17:00	IRAF / PYTHON	CCD Imaging: Photometry, and Astrometry		Exoplanets	Virtual Observatories	
17:00 – 18:00	IDL	CCD Imaging: Spectroscopy		Planet Formation and Small Body	Writing a Scientific Paper	
19:00 – 20:30	Public Conference KACCOLR Project for Crescent Observation	Public Conference Light Pollution and Dark Sky Reserve	Official Diner	Public Conference Arab Astronomy Heritage	Public Conference Science at the Arab Universities	Final Address

Subject matters covered and Speakers :

General Lectures :

- Introduction to Research in Astrophysics (**Zouhair Benkhaldoun**)
- Introduction to Cosmology (**Pedro G. Ferreira**)
- Standard Model and Beyond (**Mohamed Chabab**)
- High Energy Astrophysics (**Jamal Mimouni**)
- Theoretical Spectroscopy (**Kelly Chance**)
- Galactic Astronomy (**Randa Assad**)
- Extragalactic Astronomy (**Ismaël Moumen**)
- Solar Physics (**Nicole Vilmer & Raid Suleiman**)
- Space Physics (**Suleiman Baraka**)
- Earth and Planetary Atmospheres (**Kelly Chance & Raid Suleiman**)
- Exoplanets(**Andy Szentgyorgyi & Roger Ferlet**)
- Planetology(**David Baratoux**)
- Optical & Infrared Astronomy (**Aziz Ziad**)
- Gamma Universe (**Nidhal Guessoum**)
- Extragalactic (**Aycha Taymmour**)

Tools :

- Image Processing (**Zouhair Benkhaldoun**)
- CCD Imaging, Photometry, and Astrometry (**Michel Ory & Ahmed Daassou**)
- CCD Imaging Spectroscopy (**Abdelmajid Benhida & Fouad Sefyani**)
- IRAF, IDL, Python (**Roger Hagggar, Ismael Moumen, Ahmed Daassou & Mohamed Kaab**)
- Writing a Scientific Paper (**David Baratoux**)
- Virtual Observatories (**Abdelmajid Benhid & Zouhair Benkhaldoun**)

Public Conferences :

- Science at the Universities of the Arabic World (**Nidhal Guessoum**)
- KACCOLR Project for Crescent Observation (**Yaseen Al Malekeay**)
- Light Pollution and Dark Sky Reserve (**Martin Aubé**)
- Arab Astronomy Heritage (**Hamid M. K. Al-Naimyi**)

Invited Speakers*

The confirmed invited speakers are :

Invited Speaker	Affiliation	Cuntry
Andy Szentgyorgyi	Harvard - Smithsonian Center for Astrophysics	USA
Kelly Chance	Harvard - Smithsonian Center for Astrophysics	USA
Pedro G. Ferreira	Oxford University, England	UK
Roger Ferlet	Institut d'Astrophysique de Paris	France
Jamal Mimouni	University of Constantine	Algeria
Nicole Vilmer	Observatoire de Paris LESIA	France
David Baratoux	Toulouse University	France
Aziz Ziad	Lagrange, Nice University	France
Nidhal Guessoum	American University of Sharjah	UAE
Aycha Tammour	University of Western Ontario	Canada
Michel Ory	Société Astronomique du Jura	Switzerland
Roger Hagggar	Notre Dame University	Lebanon
Yaseen Al Malekeay	King Abdulaziz University, Jeddah	KSA
Martin Aubé	Cégep de Sherbrooke	Canada
Hamid M. K. Al-Naimyi	Sharjah University	UAE

* Only invited speakers are presented in this table. Local and SOC speakers are not presented.

Participants

The following outstanding participants were selected from a pool of more than 130 registrants. The selected participants will receive full financial support, which includes a round trip ticket from their country to Casablanca, ground transportation from Casablanca to the university, housing accommodations and meals from 27 November to 4 December.

Final list of students supported by AOD-IAU funds:

	Student	Cuntry
1	Sameh Altanany	Saudi Arabia
2	Ashwag Al-qahtani	Saudi Arabia
3	Omar Alaryani	United Arab Emirates
4	Mohamad Awad AlJad	Koweit
5	Eman Aly	Egypt
6	Hagar Ghonaim	Egypt
7	Mohamed Al Khashab	Egypt
8	Esma Zouaoui	Algeria
9	Amina Leghmouche	Algeria
10	Dallel Bouchachi	Algeria
11	Sobh El Qeeq	Palestine
12	Sameh Othman	Palestine
13	Under selection*	Tunisia
14	Under selection*	Jordane
15	Under selection*	Lebanon

* We are waiting for missing documents from candidates from these countries to finalize the selection

Statistics about supported students:

- 15 students were selected
- 10 countries are represented
- 6 men, 6 women and 3 are under selection

Most updated list of students accepted to FAWSA from Arab countries

	Student	Cuntry
1	Noora Alsaeed	UAE
3	Ola Ali	Egypt
4	Eman Aly	Egypt
5	Omar Alaryani	UAE
6	Hassan Abdalla Hassan Hamad	South Africa*
7	Walaa jubeh	Palestine
8	Shrouq Nairohk	Palestine
9	Shaima Hussein	Palestine
10	Mahmoud Awashra	Palestine
11	Haifa Manasra	Palestine
12	Afnan Alostaz	Palestine
13	Marjani Mohammed	France
14	Sherouk Shehata	Egypt
15	Richard Assal	Egypt
16	Nouran Essameldien Abdelhamid	Egypt
17	Fatma Zohra GOFFI	Algeria
18	Vishnu Balakrishnan	Germany*
19	Kathleen Short	Netherlands*

** Some candidates come from outside Arab candidates.*

Finally, this is the final list of participants from Morocco :

	Student	Level
1	BOSKRI Abdelkarim	PhD Student
2	EHMOUDDA Haidara	M.Sc Student
3	Hamza AJEDDIG	M.Sc Student
4	Hamza Qaibal	Other
5	Hassan KOURRAD	Professor

6	JAMILA CHOUQAR	M.Sc Student
7	Khadija Chafouai	M.Sc Student
8	Younes Lamsaoui	Undergraduate Student
9	Youssef MOULANE	Assistant Professor
10	Zakaria Belhaj	PhD Student
11	zineb Ihsane	Assistant Professor

Most updated statistics about students selected for FAWSA:

Gender

Males	21
Females	21
<i>Under selection</i>	3
Total	45

Countries

Africa	5
Asia	6
Europe	3
Total	14

Level

Undergraduate Student	11
M.Sc Student	13
PhD Student	11
Assistant Professor	5
Other	5

Organizers

FAWSA is organized with the collaboration of the following institutions:

IAU-OAD	IAU Office of Astronomy for Development
SAO	Harvard-Smithsonian Center for Astrophysics
UCA	Université Cadi Ayyad
OUCA	Observatoire Universitaire Cadi ayyad
LPHEA	Laboratoire de Physique des Hautes Energies et Astrophysique
3AM	Association d'Astronomie Amateur de Marrakech

Scientific Organizing Committee (SOC)

Name	Affiliation	Country
Raid Suleiman	Harvard-Smithsonian Center for Astrophysics	USA
Zouhair Benkhaldoun	Oukaimeden Observatory, Cadi Ayyad Univ.	Morocco
Randa Asa'd	American University of Sharjah	UAE
Suleiman Baraka	UNESCO chair-holder in Astronomy	Palestine
Hassan Darhmaoui	Al-Akhawyn University	Morocco
Youssef El Azhari	Moroccan National Centre of Pedagogical Innovation	Morocco
Ismaël Moumen	Université Laval	Canada

Local Organizing Committee (LOC)

Name	Affiliation
Zouhair Benkhaldoun	Observatoire Universitaire Cadi Ayyad, UCA, Marrakech
Mohamed Chabab	LPHEA UCA, Marrakech
Aziza Bounhir	FST, UCA, Marrakech
Abdelmjid Benhida	FST UCA, Marrakech
Fouad SEFYANI	FST UCA, Marrakech
Youssef El Azhari	Centre National des innovations pédagogiques et de l'expérimentation (MEN) Rabat
Abdelhadi Jabiri	FSSM, UCA, Marrakech
Mohamed Lazrek	FSSM, UCA, Marrakech

Name	Affiliation
Ahmed Daassou	Observatoire Universitaire Cadi Ayyad, UCA, Marrakech
Thami El halkouj	LPHEA/CRMFE, Marrakech
Osama Azagrouze	LPHEA/CRMFE, Marrakech
Abdelfettah Habib	LPHEA/CRMFE, Marrakech
Tarik Khalla	FSSM, UCA, Marrakech
Mohamed Sabil	LPHEA, UCA, Marrakech
Younes Jamjari	3AM, Marrakech

Sponsors

We were able to obtain support from the following institutions:

CNRST	Centre National de Recherche Scientifique et Technique
AHIIST	Académie Hassan II des Sciences et Techniques
FSSM	Faculté des Sciences Semlalia de Marrakech
FST	Faculté des Sciences et Techniques (Marrakech)
RAM	Royal Air Maroc
AGM	Société Atlas Golf Marrakech

Finance

We anticipate that \$8000 will be spent on international travel fares for the students. \$1500 to support housing expenses and \$1500 for local transportations.

Venue

FAWSA will be held at **Cadi Ayyad University, Marrakesh, Morocco**



Faculty of Sciences Semlalia of University Cadi Ayyad of Marrakech :

Boulevard Prince My Abdellah
B.P. 2390 | 40000 Marrakech | Maroc
Tel. : +212 (0)5 24 43 46 49
Fax. : +212 (0)5 24 43 67 69
<http://fssm.uca.ma>



Accommodations

Invited speakers will be hosted in **Hôtel Tichka**:
Semlalia BP 894, Route de Casablanca, Marrakech.
Tél: +212 (0)5 24 44 87 10 - Fax : +212 (0)5 24 43 61 19
<http://www.hotel-marrakech-tichka.com/>



Student will be hosted in the **University Club**:
Club de l' Université Cady Ayyad,
Boulevard Al Kouliyate, Amerchiche, Marrakech.
Tel : 212 (0)5 24 31 05 66



Website

We created a website dedicated to FAWSA. More information can be found in the address:

<http://marrakech-astro.uca.ma/fawsa/>

Conclusion

We have had a great positive feedback and registration for participation in the FAWSA. As planned, the IAU-OAD funds will be used only to support the students. The PI, all the CO-Is and invited speakers will use other sources of funds to travel to Marrakesh, Morocco.

We are confident with the outstanding talented students we selected to participate and with the accomplished respected scientists and researchers.

The invited speakers will deliver exceptional lectures that will encourage astronomy research and education in the Arab world. Lectures presented at the school will be print in a book and published to be used as a reference for students and researchers.