

40th ISYA at Kottamia Obs/Cairo, Egypt, 25thof March- 11thApril 2018

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Summary

The 40th ISYA was hosted by an alliance of Egyptian institutions, led by the Egyptian Academy of Scientific Research and Technology (ASRT), the National Institute of Astronomy and Geophysics (NRIAG), and involving the faculties of science of both Cairo and Al-Azhar Universities, Kottamia Center of Scientific Excellence of Astronomy and Space Sciences (KCScE), the Science and Technology Development Fund (STDF), and Planetarium Science Center (PSC) at Alexandria Library.

The school activities were published in the webpage: <http://isya-2018-egypt.com/>

Venue

The school was held within the premises of the Kottamia Observatory for the 1st week, and at the Cataract Pyramids resort hotel in Giza during the 2nd and 3rd week.

At Kottamia Observatory the 1.9m optical telescope was available for night-observations. The observatory also has a compound with a large auditorium for classes and a laboratory (Kottamia Center of Scientific Excellence of Astronomy and Space Sciences KCScE) with about 35 computers with all necessary software for practical sessions. All students and lecturers were hosted at observatory residences.

For the second and third week, mainly Cairo non-resident students and lecturers were hosted at the hotel, the rest of the Cairo-based students and faculty commuting daily from their homes to the lecture hall in the hotel. A school bus was chartered for this purpose by local organizers every day, and middle of second week this plan was changed for communal taxis shared among students. The hotel had all the usual infrastructure in a resort hotel. Meals were served in one of the hotel restaurants for all students. At the hotel there was no computer lab set up.

Kottamia Observatory is about 70-km to the South-East of Cairo.

Cairo-Giza has an estimated population of more than 13 million inhabitants.

Organizers

DIRECTORS

Somaya Saad (local director, NRIAG)

Kam-Ching Leung and Itziar Aretxaga (ISYA program director and deputy director).

LOCAL SCIENTIFIC ADVISORY COMMITTEE

Somaya Saad (NRIAG, Chair)

Mohamed Nader (Al Azhar Univ.)
Khaled Edris (Al Azhar Univ.)
Ashraf L. Tadross (NRIAG)
Osama Shalabieia (Cairo Univ.)
Adb-Elfaday B. Morcos (NRIAG)
Faragh Elnagahy (NRIAG)

LOCAL ORGANIZING COMMITTEE

Somaya Saad (NRIAG, Chair)
Yasser Hendy (NRIAG)
Ibrahim Zead (NRIAG)
Ahmed Sokhry (NRIAG)
Gamal Eldin Hamid (NRIAG)
Mahmod Mostafa (NRIAG)
Mohamed H. El Depsy (NRIAG)
Rasha El Daly (NRIAG)
Doaa El Sayed (NRIAG)
Amal Sayd (NRIAG)
Ahmed Kassem (NRIAG)
Safa Saad (NRIAG)
Mostafa Elawa (NRIAG)
Ola Tawfik (ASRT)
Miss Suzan (ASRT)

Announcement

The school was announced through email to prominent astrophysicists/IAU representatives in IAU member countries in Africa and the Middle East and we asked for dissemination of the announcement through the African OAD regional offices. The IAU social media accounts were also used to post announcements and so were the ISYA All Alumni page in Facebook.

Student Selection

We received 126 complete applications through the school webpage, 59 of which were from non-regional candidates in Brazil, India, Indonesia, Malaysia, Mexico, Pakistan, Philippines and Sri Lanka. The distribution of regional candidate applications (App), accepted (Acc) and finally attending (Att) students was as follows:

COUNTRY	App	Acc	Att
Algeria	16	3	0
Armenia	1	0	0
Egypt	39	18	18
Ethiopia	16	2	2
Ghana	5	1	1
Iran	5	1	0
Iraq	1	0	0
Jordan	1	0	0
Kenya	3	0	0
Lebanon	1	0	0
Madagascar	7	2	2
Morocco	3	1	0
Nigeria	9	1	1
Palestine	2	1	0
Rwanda	4	2	2
Sudan	6	2	2
Syria	1	1	0
Tanzania	2	1	1
Tunisia	2	1	0
Uganda	2	0	0

The selection of students was done by a small committee of 4 local organizers (S. Saad, Abd El Fady Morcos, O. Shalabiea and K. Edris) and the ISYA director and deputy director. There were many more deserving candidates than available places at the school. We initially aimed at having 36 students for the school.

We had a few cancellations by accepted students and a few further drop-outs due to visa difficulties, mainly from Algeria, Iran, Palestine and Syria. Well-in advance cancellations were replaced by other students whenever possible, but 5 of them were late cancellations, giving directors little chance to find suitable international replacements. The final list of 29 attending students to the ISYA can be found in Appendix A.

The final distribution of students was 62% national and 38% international, although we issued 50% regional international invitations. We achieved a final gender split of 45% female and 55% male students. 22/29 of the students were MSc students or MSc student candidates, and 7/29 students were PhD students or candidates, one of them having defended his PhD shortly before the school started.

Many of the attending students already have university or research institute positions, even before completing a PhD (see Appendix A).

Lecturers and Scientific Program

Lecturers were selected by the local and ISYA program directors to meet the needs of the proposed program. A balance of “blackboard” and practical hands-on classes was intended, but most practical classes were scheduled during the first week to use the computer lab at Kottamia Observatory. The following two weeks had a more standard blackboard classroom setup. A large number of local lecturers were included for short courses at the request of the local director. The selection of lecturers, topics, final assignment of time and gender was as follows (alphabetical order):

- *Itziar Aretxaga* (INAOE, Mexico): Galaxies [5 x 1.5 hr] (F)
- *Nabil Awadallah* (NRIAG, Egypt): Binary stars and Exoplanets [2 x 1.5hr] (M)
- *Zainab M. Award* (Cairo Univ., Egypt): Formation and Evolution of Stars [3 x 1.5 hr] (F)
- *Khaled Edris* (Al-Azhar University, Egypt): Radio Astronomy [3 x 1.5hr] (M)
- *Francesca Figueras* (Univ. Barcelona, Spain): Structure of the Galaxy [4 x 1.5 hr] (F)
- *Magdy Hanna*(NRIAG, Egypt): Period Variation in Close Binary Star systems [1.5 hr] (M)
- *Kam-Ching Leung* (Univ. Nebraska, USA): Binary Stars and Emission Line Stars [2x 1.5 hr] (M)
- *Xiaowei Liu* (Yunan Univ., China): Nebular astrophysics and interstellar medium laboratory [8 x 1.5 hr] (M)
- *Oleg Yu Malkov* (Russian Acad. Sci.): Virtual Observatory laboratory [6 x 1.5 hr] (M)
- *David Mota* (Univ. of Oslo, Norway): Cosmology [3 x 1.5 hr] (M)
- *Sultana Nahar* (Ohio Univ., USA): X-Ray plasma diagnostics in the Sun [3 x 1.5 hr] (F)
- *Somaya Saad* (NRIAG, Egypt): Variable Stars and Data reduction [3 x 1.5 hr] (F)
- *Nassim Seghouani* (CRAA, Algeria): Data Processing Laboratory [5 x 1.5 h] (M)
- *Mohamed Semedah* (NRIAG, Egypt): Solar flares [1.5hr, cancelled] (M)
- *Osama Shalabiea* (Cairo Univ., Egypt): Stellar Evolution [1.5 hr] (M)

Mohamed Semedah had to cancel his lectures due to an unexpected family emergency. There was also a cancellation for one of the three Egyptian Astronomy slots programmed. These gaps were used for an extension of the lectures by Nassim Seghouani and extra time for projects developed by the students.

We, thus, had 14 lecturers (including ISYA program director and deputy director and OYA Steering Committee chair): 1 from Algeria, 1 from China, 6 from Egypt, 1 from Mexico, 1 from Russia, 1 from Spain and 2 from USA. The gender split among lecturers was 36% female, 64% male.

Apart from these lecturers, there were several recent PhD graduates and young faculty from NRIAG that assisted the observations and data reduction labs, and one of the ISYA students,

Ola Ali, also a research assistant at NRIAG, acted as a data reduction coach to her fellow students all through the school. Observations and data reduction assistants were:

- Gamal Eldin Hamid (NRIAG)
- Yasser Hendy ((NRIAG)
- Ola Ali M. Saad ((NRIAG)
- Ibrahim Zead (NRIAG)

The program included some talks by invited speakers on Egyptian astronomy and culture to show the heritage of the host country:

- Wassim Al-Sisi on “Egyptology”
- Ashraf Shaker on “Egyptian Astronomy”

The initial schedule of classes and activities is detailed in Appendix B.

The nights of the 1st week of the school were scheduled to have astronomical observations with the 1.9m telescope of Kottamia Observatory. These observations were to be led by Somaya Saad and her associated assistants. Observations at Kottamia Obs. were originally designed to feed some projects that groups of 3-4 students could tackle during the following weeks. This plan fell down due to unsuitable weather conditions (see section below on Development of the School), and was replaced by a back-up program.

Academic activities included a selection of other hands-on classes, most prominently, data reduction, virtual observatory and data processing classes. These were mostly concentrated on the first week. On the second and third weeks, a nebular astrophysics laboratory was scheduled, and partially performed.

The academic program also included a series of 3 workshops on Career Development, including discussion sessions and presentations on CV writing, application for jobs/schools and challenges such as impostor syndrome and implicit biases (gender and other minority biases), led by ISYA Program Director and Deputy Director.

At the end of the school, we had 3 sessions of student presentations for group projects and we performed a roster of 2-min flash talks on their individual research projects that they are carrying out at their universities for their degrees. All students were asked to give a flash talk. The only MSc student candidate that did not yet have a thesis project, chose a topic of her liking to talk about. These short talks prepare students for quick presentations of poster results in conferences, which are often shorter (~1 min).

The list of projects and individual presentations is included at the end of Appendix C.

Development of the School

Selected students from Morocco and Tunisia cancelled their participation in advance due to other commitments. Students from Algeria and Palestine were kept as participants until the last moment as they were waiting for their visas to be issued, but had to be excluded from the school after they did not obtain them to arrive for at least half of the program. Students from Iran and Syria could never get a visa to enter the country in time for the school. With these unforeseeable problems in mind, we lost 4 airplane tickets already paid for and the visa costs the students went through to enable their participation. Other cancelling students from Egypt were replaced by local students whenever possible, and the balance of foreign to national students was hence tilted towards the latter, although originally planned as 50-50%.

All attending students arrived and departed as scheduled for the school. All foreign students and lecturers arrived at Cairo international airport, where they were met by local students or locally arranged pick-up services, and delivered back there when their time at the school had finished. The only Egyptian student not based in Cairo used ground transportation to travel to the school.

Apart from the body of students and lecturers, we welcomed a governmental observer from Nepal, Mr. Saroj Raj Shahi, that attended and participated in the school from 25th March to 2nd April as a guest, to assess whether Nepal could apply for one of the ISYA schools in the near future. Our Egyptian hosts generously covered his local expenses at the observatory, while he supported himself for the rest of the school. Also attending selected lectures on the 2nd and 3rd weeks was Egyptian journalist/outreach specialist Mr. Mohamed A. Shamrouck, who also assisted with the organization of cultural activities.

The academic program of the school was carried out according to plan for most lecturers, with some minor scheduling changes, most notably the cancellation of Mohamed Samedah due to a family emergency.

All lecture notes were made available to the students in pdf format through Google Drive servers.

The final schedule was packed with activities, and students complied diligently with all of them, especially during the first week of the school, when they were all housed together at the observatory. Second and third weeks were more troublesome for local students, as they had to commute to their residences in Cairo. Since time had been scheduled after dinner to work on group projects, they strongly felt the impact of the daily 2-4 hrs commute on their sleep. After consultation with the students on the feasibility and willingness to complete this activity, group projects were kept in the academic program, but the times for departure and arrival to the school kept being a topic of tension among groups of students.

Observing time was not successful due to uncharacteristic bad weather for the season. The bad weather conditions also precluded the internet service to work smoothly during our time at the observatory. The same NRIAG-supported internet service was established also at Cataracts Pyramid Hotel, where it worked very well during the 2nd and 3rd weeks of the school, in parallel to the hotel internet service.

The group projects originally planned for were cancelled and the observing tutor distributed two sets of observations to students to work on, and a written cookbook to reduce and analyze the data. Since the school only had 4 working days at the observatory, where the computer lab was also established, students spent a long time installing the reduction and analysis packages in their laptops to perform the projects at the hotel, and this was also a further cause of delay. The observing tutors were unable to attend most of the 2nd and 3rd week of the school due to their own teaching commitments.

As an alternative, we offered the possibility of studying and researching a few seminal review papers on different topics, but only one group of students felt they preferred to go for this option.

The final group projects were hence 2 sets of observations on stellar clusters and eclipsing binaries, and a review paper. Students worked on these topics throughout the school and made group presentations at the end. The results were encouraging, given the difficulties with data, computer preparation and data handling they had.

The group presentations were free-format within a 15min time-frame, and either one or all group participants could talk. The individual flash talks were a rigid one-viewgraph presentation within a 2-min time-frame. Some students, surprisingly, opted for only talking and not showing any visual material, others prepared more viewgraphs than allowed for, unaware that the chair was only going to show one of them. They had been warned beforehand that only one viewgraph was allowed. We had questions after each presentation: a 5 min discussion for group projects and one quick question for flash talks. The talks by students were well prepared for the most part, and although reluctant to talk in such a short time-frame for individual projects, most students did a good first attempt.

After the students' talks, the attending faculty had a round of suggestions on how to improve their presentations.

The official opening of the school in Cairo was under the auspices of Khaled Abd El Ghaffar, Minister of Higher Education and Scientific Research, and presided by high-dignitaries, including Mahmoud M. Sakr, President of the Egyptian Academy of Scientific Research and Technology, Hatem H. Odah, President of NRIAG, Yasser Abd El Fattah, Vice Minister of Higher Education and Scientific Research, Mohamd N. Ismail, President of the IAU-Egyptian National Committee for Astronomy and Ashraf Tardross, Head of Astronomy Dept. of NRIAG. Many of them participated also in the closing of the school, and made questions and final comments to student presentations.

Complementary Activities

Cultural weekend activities included a guided tour to the Cairo historical quarters, Giza pyramids, Egyptian Museum, Nilo River, and a tour to Alexandria, including the rebuilt Alexandria Library. Local students, faculty and LOC were encouraged to participate in these activities together with foreign participants. The activities were led by local director Somaya Saad, aided by LOC and local students, who enthusiastically took care of all participants. All foreign participants were always accompanied by one or more Cairo-based participant, that carried a cell phone for coordination in crowded areas. Local organizers also arranged for private security to be present in cultural tours.

The start of the school was covered by local media, in paper and TV. Egyptian Science authorities also attended the official opening and closing of the school in Cairo.

Students' Feedback

The direct transcription of the students' feedback forms can be found in Appendix D. We present here the directors' analysis and some comments selected from the students.

The students on average found the application procedure adequate (19-23 as good vs 1-0 as not, and 3-5 neutral).

The lecture content, lecture presentations and replies to their questions by lecturers were valued very positively (19-24 yes, 2-3 neutral, 0-2 no), and more students than not thought the level on average was right (13 as right, 6 as too high, 6 as too low). The time allocated to lectures is regarded as too intensive by most (16 as too long, 10 as right, 3 as too short). On average, a balance seems to have been achieved, the outcome being more satisfactory than not.

Since observations were not performed due to bad weather, it is difficult to interpret the feedback from the students on this topic. The observations were valued as a positive item in the school (18 yes, 6 neutral, 2 no), the time spent on observations more tilted towards too short, with a large scatter (10 as too short, 6 as right, 5 as too long). The preparation for observations was valued in a very scattered manner (8 bad, 7 neutral, 6 good), but the facilities, support by supervisors and interaction with them, in general, as very good (19-21 yes, 2 neutral, 2-4 no).

Student presentations were valued positively (16-23 yes, 1-9 neutral). Most students thought the exercise was well organized (14 yes, 8 neutral, 1 no), and the time devoted for this activity being in general more tilted towards right than not (12 right, 7 too short, 3 too long).

School transportation, accommodation and food were in general valued positively, with outstanding complains by some individuals. Food and accommodation at Cataracts Pyramid

Hotel was excellent by the directors standards, the food and accommodation being more basic at the observatory, but adequate.

The cultural activities were regarded as positive and most students thought there was enough leisure time (19 yes, 4 neutral, 2 no). The academic program was heavily packed by design on working days, but weekends were enjoyed freely by most.

The vast majority of students found that the ISYA has been beneficial for their future development as astronomers, that they established an international network and they strengthen their research development (23-24 yes, 2-4 neutral, 0-1 no). Some students complained that there were no students from Europe and North America, clearly not understanding the focus of the ISYA Program on countries that need further development in astronomy. Most students regarded this ISYA as an opportunity to define better their interest (12 yes, 6 neutral, 3 no).

The feedback form needs to be changed to avoid the “or” entries. Students filled all the options and the results are more difficult to analyze that way.

Selected comments by students in their feedback forms:

- I am very happy to be part of the 40th ISYA 2018. I strongly believe that I am going back better.
- I enjoyed the school, this was my very best school that I attended.
- This is very nice for me. Thanks for all. God bless us! I really enjoyed my stay in Egypt.
- I enjoy the school and I enjoy all the activities. I acquired many knowledge about astronomy and it encourages me to pursue my studies in this area.
- Thank you very much for giving me the opportunity to attend this school and I hope that the relation between students and lecturers still continue.

Directors’ Summary, Assessment and Recommendations

The directors are pleased with the development of the school, despite the difficulties with bad weather conditions and the disappointment of losing some students due to unexpected visa issues. The close presidential elections in Egypt could have made these conditions harder than originally expected, but this could not have been predicted when the school was approved.

Travel coordination needs a dedicated person at the IAU Office that can make re-bookings in emergency situations. Direct communication with the IAU travel agency is needed, also on weekends, when all travel for participants happens. Air companies reluctantly aided participants in changing their plane tickets, as the travel agency was not operational for emergency delays on weekends. Travel insurance is needed for lost tickets.

The lectures were delivered at dissimilar levels, some being very basic, and some very hard to follow for the regional graduate students. Efforts by ISYA directors to persuade some of the lecturers to go to the basics and raise the level for others were met with uneven success. Although the syllabuses for lectures with possible overlap were shared beforehand, there was some repetition of the material some of the lecturers were covering. A large overlap between lecture courses on similar topics should be avoided in the future. More emphasis should be made on lecturers understanding that they need to adapt their lectures on the spot for the majority of the students to be able to follow. Some lecturers excelled at this challenge.

Group projects, if maintained in future schools, should be done when all students are housed together, unless the commute time is relatively short (~half an hour). Otherwise, more chance is given to non-local rather than to local students to work on them. A tutor/lecturer present throughout the school needs to be commissioned, to look after their progression.

When observatory activity is planned, a more balanced schedule of hands-on activities needs to be distributed for the weeks not at the observatory. This requires a computer lab available at all locations.

The need to practice flash talks was not understood by some of the students, and further motivation for this activity and explanations as to the reasons behind it, needs to be implemented.

Three ISYA alumni returned to the school as lecturers and local organizers, most prominently local director Somaya Saad (ISYA1994 in Egypt), but also Francesca Figueras (ISYA1986 in Portugal) and Nassim Seguouani (ISYA1999 in Romania) – we discovered the last two had been ISYA students by chance, and they were not selected as lecturers on that basis.

The directors of the school think the 40th ISYA was very successful, meeting the expectations of local and IAU organizers in the progression of Astronomy opportunities for research students in the region.

Appendix A: List of Students

Surname	Name	Position	Institution	City	Country	M/ F
Abdel-Fattah Mohamed Negm- Eldin	Mahmoud	Teacher Assistant / MSc student	Cairo Univ.	Cairo	Egypt	M
Aboelsoud	Reem	Research assistant / MSc student	NIARG / Cairo Univ.	Cairo	Egypt	F
Ahmed	Maysa	MSc student	Cairo Univ.	Cairo	Egypt	F
Ali	Abdallah	Demonstrato r / MSc student	Al-Azhar Univ	Cairo	Egypt	M
Ali M. M. Saad	Ola	Assistant Researcher / MSc student	NIARG	Cairo	Egypt	F
Atta	Saad	MSc student	NIARG	Cairo	Egypt	M
Attia	Ahmed	MSc student	NIARG	Cairo	Egypt	M
Darwish	Mohamed Said	Research Assistant / PhD student	NIARG	Cairo	Egypt	M
Eid	Abdelaziz	Research Assistant / MSc student	NIARG	Cairo	Egypt	M
Ghonaim	Hagar	MSc student	Cairo Univ.	Cairo	Egypt	F
Ibrahim	Nouran Essameldien	Research Assistant / MSc student	NIARG	Cairo	Egypt	F
Khafagy	Esraa	MSc student	Cairo Univ.	Cairo	Egypt	F
Mabrouk	Raouf Hassan Hanafy	Research Assistant / MSc student	NIARG	Cairo	Egypt	M
Magdy	Basant	Demonstra. / MSc student	Alexandria Univ.	Alexandria	Egypt	F
Mouner	Abdelrahma n	Teaching Assisant / PhD student	Al-Azhar Univ	Cairo	Egypt	M
Nasser	Ahmed	MSc candidate	Al-Azhar Univ	Cairo	Egypt	M
Sherif	Abdelrahma n	Demonstra. / MSc student	Cairo Univ.	Cairo	Egypt	M
Tawfeek	Amira	Research Assistant / PhD student	NIARG	Cairo	Egypt	F
Geremow	Meron Bekabil	MSc student	Addis Ababa University	Addis Ababa	Ethiopia	F
Habtie	Gesesew	Lecturer /	Debre Berham Univ	Debre Behram	Ethiopia	M

		PhD candidate				
Ntahompagaz	Joseph	PhD student	EORC graduate, Ethiopia	Kigali	Rwanda	M
Berkoh	Rebecca	MSc student	University of Cape Coast	Adenta-Accra	Ghana	F
Raharimbolamena	Gloria	MSc candidate	Univ. Antananarivo	Antanana.	Madagascar	F
Rakotondranaivo	Jean Claude	MSc student	Univ. Antananarivo	Antanana.	Madagascar	M
Aralu	Ogochukwu	MSc student	Univ. Nigeria, Nsukka	Enugu	Nigeria	F
Mbarubucyeye	Jean Damascene	PhD student	MBARARA University of Science and Technology	Kigali	Rwanda	M
Eldaw	Mohammed	Researcher / PhD candidate	Institute of Space Research and Aerospace(ISRA)	Khartoum	Sudan	M
Salam	Eshraga Abdel	MSc student	Institute of Space Research and Aerospace (ISRA)	Khartoum	Sudan	F
Manzengo	Daudi	Teaching Assistant /MSc student	University of Dodoma	Dodoma	Tanzania	M

Appendix B: Schedule

Key:

DM	David Mota
FF	Francesca Figueras
IA	Itziar Aretxaga
KCL	Kam-Ching Leung
KE	Khaled Edris
MH	Magdy Hanna
MS	Mohamed Semedah
NA	Nabil Awadallah
NS	Nassim Seghouani
OS	Osama Shalabiea
OYM	Oleg Yu Malkov
SN	Sultana Nahar
SS	Somaya Saad
XL	Xiaowei Liu
ZMA	Zainab M. Award

First Week							
	March 25 Sunday	March 26 Monday	March 27 Tuesday	March 28 Wednesday	March 29 Thursday	March 30 Friday	March 31 Saturday
09:00 - 10:30	Arrival	To Observatory	IA Galaxies 1	KCL ImpactOnCosmology	KCL Emission-line Stars	Return to Hotel	Cultural Activities
10:30 - 10:45			Tea/Coffee Break	Tea/Coffee Break	Tea/Coffee Break		
10:45 - 12:15			OYM Virtual Obs 1	OYM Virtual Obs 2	OYM Virtual Obs 3		
12:15 - 13:30			Lunch	Lunch	Lunch		
13:30 - 15:00		Introd Faculty&Students	SS Pe Reduction 1	OYM VO Labs 1	OYM VO Lab 2		
15:00 - 16:30		SS Var Stars	NS DataProcessing 1	NS DataProcessing 3	OYM VO Labs 3		
16:30 - 16:45		Tea/Coffee Break	Tea/Coffee Break	Tea/Coffee Break	Tea/Coffee Break		
16:45 - 18:15		SetUpResearchTeams	NS DataProcessing 2	SS Pe Reduction 2	NS DataProcessing 4		
18:15 - 19:45	Dinner	Dinner	Dinner	Group Photo Dinner	Dinner		
20:45	Observing		Observing	Observing	Observing	Cultural Activities	

Second Week							
	April 1 Sunday	April 2 Monday	April 3 Tuesday	April 4 Wednesday	April 5 Thursday	April 6 Friday	April 7 Saturday
09:00 - 10:30	XL ISM 1	SN Solar Plasma 1	XL ISM 3	SN Solar Plasma 3	IA Galaxies 4		
	Tea/Coffee Break	Tea/Coffee Break	Tea/Coffee Break	Tea/Coffee Break	Tea/Coffee Break		
10:45 - 12:15	Opening	NA Binary&Exoplanets1	DM Cosmology 1	IA Galaxies 3	FF Galaxy & GAIA 4		Cultural Activities
12:15 - 13:30	Lunch	Lunch	Lunch	Lunch	Lunch		
13:30 - 15:00	IA Galaxies 2	XL ISM 2	FF Galaxy & GAIA 2	FF Galaxy & GAIA 3	DM Cosmology 2		
15:00 - 16:30	FF Galaxy & GAIA 1	KE Radio Astr 1	KE Radio Astr 2	XL ISM 4	DM Cosmology 3		
16:30 - 16:45	Tea/Coffee Break	Tea/Coffee Break	Tea/Coffee Break	Tea/Coffee Break	Tea/Coffee Break		
16:45 - 18:15	Egyptian Astronomy	NA BinaryForm&Evol 2	SN Solar Plasma 2	XL ISM Lab 1	XL ISM Lab 2		
18:15 - 19:45	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner

Third Week			
	April 8 Sunday	April 9 Monday	April 10 Tuesday
	April 8 Sunday	April 9 Monday	April 10 Tuesday
09:00 - 10:30	OS Stellar Evolution	ZMA StarForm&Evol 1	MH Period Variation
10:30 - 10:45	Tea/Coffee Break	Tea/Coffee Break	Tea/Coffee Break
10:45 - 12:15	KE Radio Astr 3	MS SolarFlareSpectroscop	ZMA StarForm&Evol 2
12:15 - 13:30	Ttea/Coffee	Lunch	Lunch
13:30 - 15:00	IA Galaxies 5	IA Career Develp	IA CV Writing
15:00 - 16:30	DM Cosmology 4	XL ISM Lab 3	ZMA StarForm&Evol 3
16:30 - 16: 45	Tea/Coffee Break	Tea/Coffee Break	Tea/Coffee Break
16:45 - 18:15	Egyptian Astronomy	Egyptian Astronomy	XL ISM Lab 4
18:15 - 19:45	Dinner	Dinner	Dinner
			April 11 Wednesday
			KCLGrad & Job
			Tea/Coffee Break
			Student Presentation
			Student Presentation
			Tea/Coffee Break
			Closing Ceremony
			Dinner
			Dinner
			Departure

Appendix C: List of Students' Presentations

GROUP PROJECTS

- Stellar Cluster Photometry
- Binary Stars Light Curve Analysis
- The HST Distance Scale Key Project

INDIVIDUAL PRESENTATIONS

Surname	Name	Title of talk / Interest
Abdel-Fattah Mohamed Negm- Eldin	Mahmoud	The Physical properties of short period close binaries
Aboelsoud	Reem	Solar Wind Effects on Mars atmosphere
Ahmed	Maysa	Pulsating stars
Ali	Abdallah	Modelling the Interstellar Dust
Ali M. M. Saad	Ola	Open Star Cluster Using 74" inch Kottamia Telescope
Atta	Saad	Suzaku Observations of BL Lacs
Attia	Ahmed	3body problema
Darwish	Mohamed Said	Maser emission toward high-mass star forming regions
Eid	Abdelaziz	Eclipsing Binaries in Open Clusters
Ghonaim	Hagar	Observations of space debris
Ibrahim	Nouran Essameldien	Cosmology
Khafagy	Esraa	Studying High Mass Star Formation using Radio Emission Lines
Mabrouk	Raouf Hassan Hanafy	A glimpse of Black Holes
Magdy	Basant	Dark Energy
Mouner	Abdelrahman	Coronal and Chromospheric Magnetic Fields by the Nobeyama Radioheliograph
Yassin	Ahmed	A good telescope using liquid optics
Sherif	Abdelrahman	Gravity Probe-B Mission Testing Einstein Gravity
Tawfeek	Amira	Gravitational Interaction and Asymmetric Galaxies
Geremow	Meron Bekabil	Characteristic of AGN population in $\sim 10,000$ deg ² SDSS. DR8 red Mapper galaxy clusters
Habtie	Gesesew Reta	The stationary state of the magnetic field in the Sun

Ntahompagaz	Joseph	Scalar-tensor theory and cosmological observations
Berkoh	Rebecca	Dynamics of extreme precipitation
Raharimbolamena	Gloria	Gravitational waves
Rakotondranaivo	Jean Claude	The variability of RR Lyrae stars from SDSS Stripe 82 reprocessed by LSST
Aralu	OGOCHUKWU	Unification of AGN
MBARUBUCYEYE	Jean Damascene	The SED of unidentified Fermi-LAT sources
Eldaw	Mohammed	Space Weather Effects in Navigation Systems
Salam	Eshraga Abdel	Space Weather Effects on Ground Technology
Manzengo	Daudi	Detailed characterization of LINERs and RGs

Appendix D: Students Feedback by Numbers

This is a direct transcription of the feedback forms filled by the students. 26/29 students filled the form.

Any significant correction or addition to their texts is indicated by []

ISYA Evaluation Form - Results

If you give a mark of less than 3 to any question, please add a short explanation under “comments”

Name (*optional*):

If you do give your name, we can interpret your answers in the light of what we know of your background.

Answer only one of the questions in each group connected by “Or”

General

		5	4	3	2	1	
The website told me all I needed to know	Strongly agree	8	11	5	1	1	Disagree
The application form was easy to fill in	Strongly agree	16	7	3	0	0	Disagree
Applications were efficiently handled	Strongly agree	16	6	3	1	0	Disagree

Comments

It is nice, please continue with it. I think it would be very nice of ISYA organizers to invite more foreigner [students] different from each country. The website needed more update & the application needed more data. Accommodation arrangements at the observatory was not mentioned, so cloths selection was not [adapted] to the very cold climate. The application was the same as I have done before. But it is related to my topic I am selected.

Lectures

		5	4	3	2	1	
The lectures were the most useful part of the ISYA	Strongly agree	12	7	3	2	0	Disagree
The time spent on the lectures was too long	Strongly agree	10	6	2	0	2	Disagree
<i>Or</i> the time spent on the lectures was too short	Strongly agree	2	1	0	2	2	Disagree
<i>Or</i> the time spent on the lectures was just right	Strongly agree	7	3	2	0	1	Disagree
The lectures were at too high a level	Strongly agree	2	4	2	0	3	Disagree
<i>Or</i> the lectures were at too low a level	Strongly agree	4	2	0	2	2	Disagree
<i>Or</i> the lectures were just right	Strongly agree	10	3	2	1	0	Disagree
The lectures were well presented	Strongly agree	17	7	3	0	0	Disagree
The lecturers responded well to questions	Strongly agree	16	7	2	0	0	Disagree
I found it easy to get on with the lecturers	Strongly agree	9	12	4	1	0	Disagree
The lecture room was comfortable	Strongly agree	13	4	6	2	1	Disagree

Comments:

Some [topics] need to be added in the lectures as: high energy astrophysics, celestial mechanics. The time spent on the lectures wasn't too short. The lecturers were so advanced and we don't know the basics (Some of the lectures). The lecture time was too long, sometimes we couldn't follow the lecturer & some of the them have intense material. The lectures period were very long, I couldn't focus all the time. In addition, the level of the lectures need to be more simple. The lectures were so insightful but no time to go through them here. Some lectures were too high, others too low, few were average. The light of the room is uncomfortable, the air conditioning either too cold or too hot. The lecture room was too cold for me, making it uncomfortable each time. Most of the lectures were just right but there are some high level that I didn't see before and that incite me to deepen more in other topic. I think that if the lectures are one hour, it will be better and more useful. They are at too high level.

Observational training

		5	4	3	2	1	
The observation projects were the most useful part of the ISYA	Strongly agree	10	8	6	2	0	Disagree
The time spent on observation was too long	Strongly agree	2	3	0	2	5	Disagree
Or the time spent on observations was too short	Strongly agree	8	2	1	2	1	Disagree
Or the time spent on observations was just right	Strongly agree	2	4	3	0	0	Disagree
The lectures did not prepare me adequately for the observations	Strongly agree	6	2	7	3	3	Disagree
The computing facilities were good	Strongly agree	10	9	6	1	1	Disagree
The help I got with my project was adequate	Strongly agree	7	13	2	2	2	Disagree
I found the supervisors helpful and easy to get on with	Strongly agree	13	8	2	0	2	Disagree

Comments:

There were no observations due to weather condition. No observations but the computational aspect of it was very good. They are helpful. We couldn't reach the supervisor [XXX], he doesn't help us and actually Ola & two other doctors help us. The supervisor of our project [XXX] was not honest. He doesn't [give] us the full information to understand what to do. In addition, he gave us a pdf to follow the steps of reduction & analysis, full of many mistakes & missing parts. The condition was bad and we didn't do any observations. I have been working on high energy astrophysics but my project was eclipsing binary stars in ISYA 2018. That is why I said that the project was not helpful. Unfortunately, we couldn't do our observations but I think any time you will spend with observing is enjoying time. The lecturers do their work very well.

Presentation exercise

		5	4	3	2	1	
The student presentations were the most useful part of the school	Strongly agree	6	10	9	0	0	Disagree
The time spent on this was too long	Strongly agree	1	2	3	1	4	Disagree
<i>Or</i> the time spent on this was too short	Strongly agree	1	6	0	1	0	Disagree
<i>Or</i> the time spent on this was just right	Strongly agree	9	3	1	0	1	Disagree
This exercise was well organized	Strongly agree	9	5	8	1	2	Disagree
This exercise was interesting	Strongly agree	11	12	1	0	0	Disagree

Comments:

Time of personal presentation was very short. 5 minutes will be better than a minute. Some exercise needs to as avanbus [?] homework and needs to some learning other analysis for different data. The exercise part need more time.

Accommodation:

		5	4	3	2	1	
The airport transport was efficiently done	Strongly agree	8	2	3	0	0	Disagree
The rooms were good	Strongly agree	11	1	3	0	1	Disagree
The breakfast was good	Strongly agree	13	5	0	0	0	Disagree
The meals were good		13	7	1	1	1	Disagree
The organizational support was good	Strongly agree	16	6	1	1	1	Disagree
Generally, the ISYA environment was good	Strongly agree	16	7	2	0	0	Disagree
Cataract Pyramids Hotel was a good place to hold this ISYA	Strongly agree	10	4	5	4	1	Disagree

Comments:

I'm a local student, so we hadn't accommodation, and the transportation to the hotel wasn't so good. I have a comment on the accommodation in the hotel which is: a large number of Egyptians were not allowed/funded to stay at the hotel! It is really hard for us to finish at 9pm after the project, and go home and back to the lectures tomorrow at 9am. It was exhausting and not acceptable. The service in Cataracts Hotel was very poor. In addition, the quality of the food & snacks were bad, the lecture room wasn't comfortable and the AC wasn't adapted well. Egypt is the best place. I am Egyptian. The hotel is very far away and I couldn't stay at night. So I didn't really get the full scientific benefit of ISYA 2018.

Cultural tours and leisure:

		5	4	3	2	1	
The leisure possibilities after the lectures were good	Strongly agree	12	7	4	0	2	Disagree
The Saturday March 31 excursion was good	Strongly agree	15	5	2	0	0	Disagree
The Friday April 6 excursion	Strongly agree	13	5	1	0	0	Disagree
The Saturday April 7 excursion	Strongly agree	14	5	2	0	0	Disagree
Sport facilities were good	Strongly agree	2	0	5	2	5	Disagree
Generally, this part of the ISYA was good	Strongly agree	9	5	2	1	0	Disagree

Comments:

We didn't get any leisure time, we worked in our projects after lectures, only ping-pong in the observatory (the only sport we had). There were no sports due to time limit. Any part of ISYA is very good. As local student, this part wasn't big deal for me as I can go anytime. We had no sport activities in a group [note: a gym and a pool were in plain view at lunch/dinner time]. Regarding the excursions unfortunately I could not attend any of it, [because of] my own circumstances.

The future:

		5	4	3	2	1	
I developed an international network as a result of this ISYA	Strongly agree	18	6	2	1	0	Disagree
The ISYA helped me to better understand my actual research interests	Strongly agree	11	6	6	2	1	Disagree
The ISYA encouraged me to strengthen my research in astronomy	Strongly agree	16	7	4	0	0	Disagree
Through the ISYA I acquired a broader view on the research done in astronomy	Strongly agree	15	9	6	0	0	Disagree
I have benefited significantly from attending this ISYA	Strongly agree	16	6	2	0	0	Disagree

Comments:

I am very happy to be part of the 40th ISYA 2018. I strongly believe that I am going back better. Thanks for the lectures and the insights. I am grateful. Thank you so very much. I will miss all of you. Lecture time table was very intensive & free times were not enough to take a rest & refresh your mind. I didn't find sport facilities in this school. It'll be good to include a sport program in the school which help us to be more active, rather, & to refresh our minds. I think free time very, very, short, I couldn't make a good international network though this

school. Needs to other subject in other astrophysics. I would like to thank all the persons organized ISYA 2018, the national people and the international., I'm very grateful for you; - All the best.

If you have any other comments, please put them here:

I think it should be a variety of fields in astronomy, I mean that a large number of the lectures were in the same field. Entertainment of at least 10 minutes is important between lectures to activate students. ISYA & IAU should make global explore especially in developing countries to understand the status of A&A and plan cohesively to help so us to improve this field. Funds for scholarships have to be given more priority. I hope ISYA cover many topics on cosmology. ISYA is very good all the time. For the lectures that stay for 3 hours, better to put a short break like 2-3 minutes to make students ready for the next 1.5 hours' lecture. I enjoyed the school, this was my very best school that I attended. I got more information about my research and I got also new interesting. For the next school, I suggest more practice because this is also most important in astronomy as we deal with data. Finally I want to thank specially the local organizers, Prof. Kam and Itziar for their preparation and enthusiasm. This is very nice for me. Thanks for all. God bless us! I really enjoy my stay in Egypt, I enjoy the school and I enjoy all the activities. I acquired many knowledge about astronomy and it encourage me to pursue my studies in this area. Thank you very much for giving me the opportunity to attend this school and I hope that the relation between students and lecturers still continue. More focusing on practical part. Thank you.

Kam-Ching Leung

Univ. Nebraska, USA

ISYA Program Director

Itziar Aretxaga

INAOE, Mexico

ISYA Deputy Director