

Mentor and Pioneer: A Tribute to Engin Arik

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ATLAS collaboration, Indiana University

Outline

- ❑ **Gender perspective in the ATLAS collaboration**
- ❑ **The ATLAS Women's Network**
- ❑ **The Engin Arik Fellowships**

Why these topics?

- Engin was a pioneer in particle physics in Turkey and acted both as a mentor and an inspiration to many young people
- She cared highly for her students and strongly believed in promoting women in physics
- Engin, Christine Kourkoumelis and I were among the founding members of the ATLAS Women's Network. We all shared a commitment to promoting women in science and hoped for an easier time for women in scientific areas.

Gender statistics for ATLAS

Data source:

- All statistics are based on the **ATLAS authorship database** as of May 8th, 2008 with extra information obtained from the **CERN database**
 - To be counted as an author, one needs to be a scientist contributing to ATLAS for at least a year
- For **elected/appointed positions**, information was gathered from various websites or from the minutes of the Collaboration Board meetings

Distribution of ATLAS authors per home institute and nationality

Country	Institute	Nationality	Country	Institute	Nationality
German	12.0%	12.7%	Greek	1.5%	2.3%
Italian	9.1%	12.3%	Dutch	1.9%	2.0%
American	20.4%	11.4%	Polish	1.0%	1.6%
British	9.5%	8.2%	Swedish	1.6%	1.6%
French	6.5%	6.9%	Israeli	1.5%	1.5%
Russian	5.1%	6.2%	Romanian	0.8%	1.2%
Japanese	3.8%	4.0%	Portuguese	1.1%	1.2%
Spanish	3.4%	3.6%	Swiss	1.3%	1.1%
Czech	2.9%	3.3%	Austrian	0.5%	1.0%
Canadian	4.0%	3.1%	Norwegian	0.9%	0.9%
Chinese	0.5%	2.4%	Turkish	0.6%	0.9%

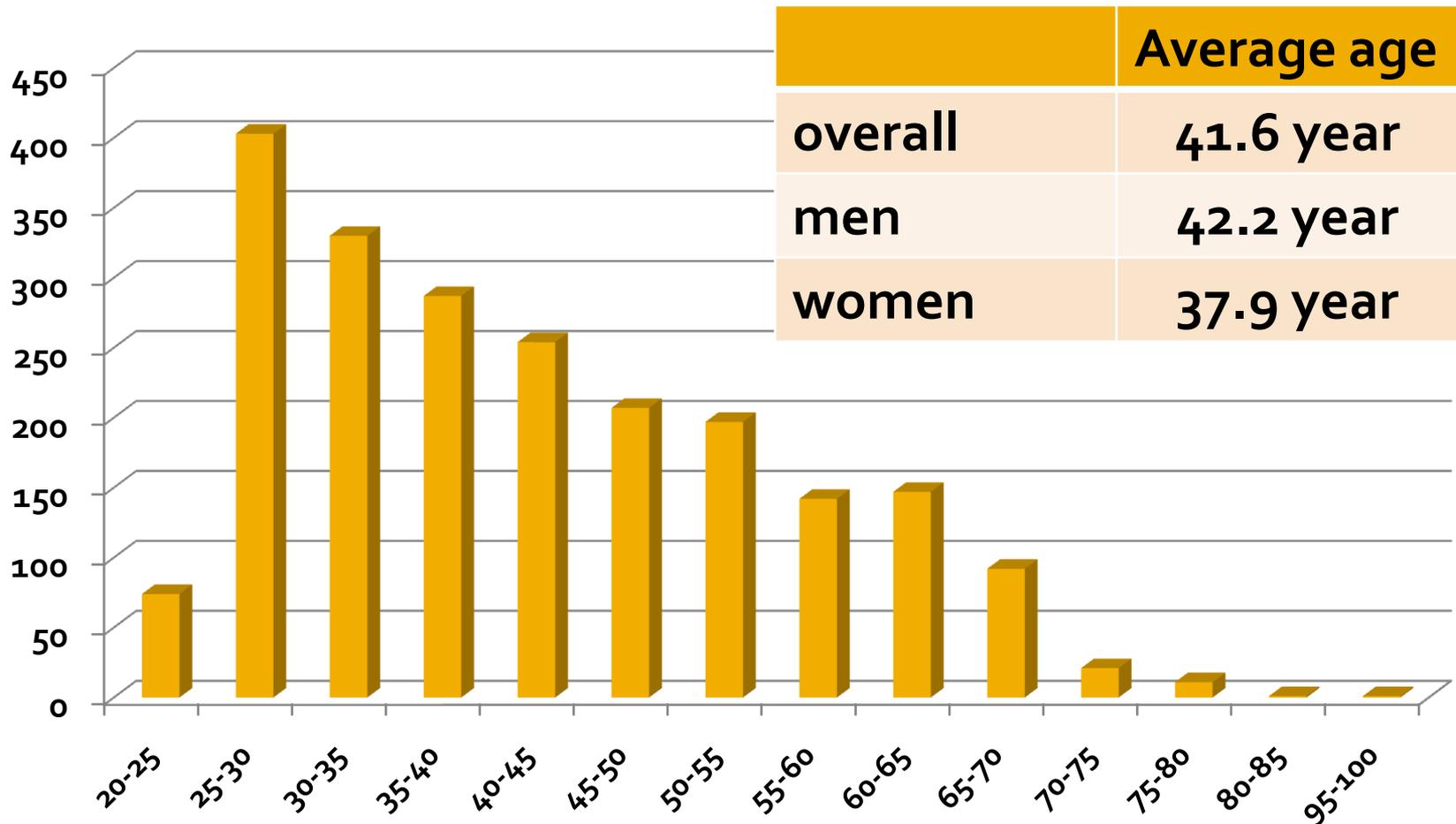
Note: 5% ATLAS people employed by CERN → increase for Europeans

Distribution per nationality of ATLAS authors (70 nationalities)

Nationality	%	Nationality	%
German	12.7%	Dutch	2.0%
Italian	12.3%	Polish	1.6%
American	11.4%	Swedish	1.6%
British	8.2%	Israeli	1.5%
French	6.9%	Romanian	1.2%
Russian	6.2%	Portuguese	1.2%
Japanese	4.0%	Swiss	1.1%
Spanish	3.6%	Austrian	1.0%
Czech	3.3%	Norwegian	0.9%
Canadian	3.1%	Turkish	0.9%
Chinese	2.4%	Indian	0.8%
Greek	2.3%	Others (47)	10.0%

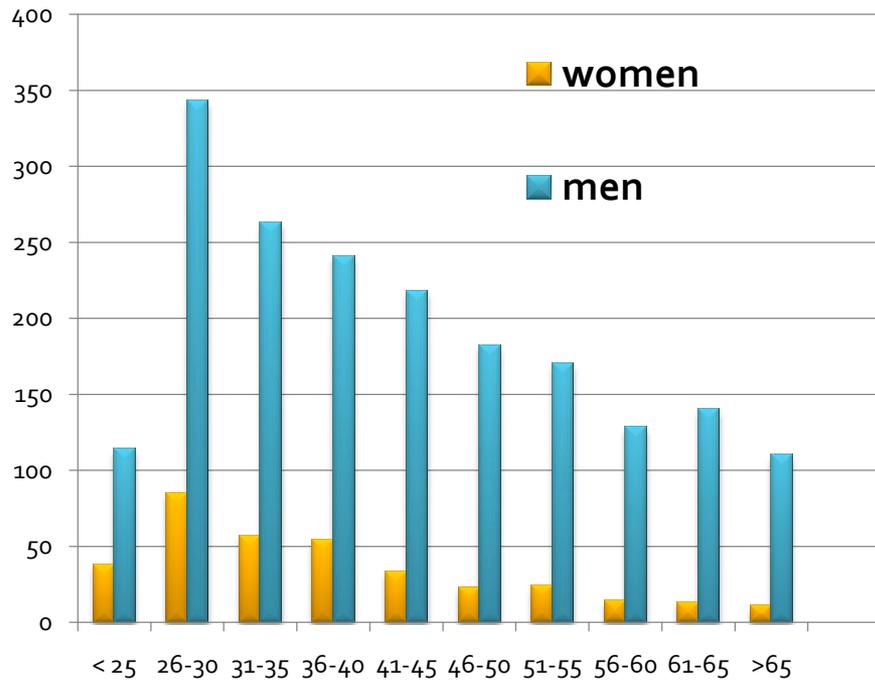
44.6%

Age distribution for ATLAS authors

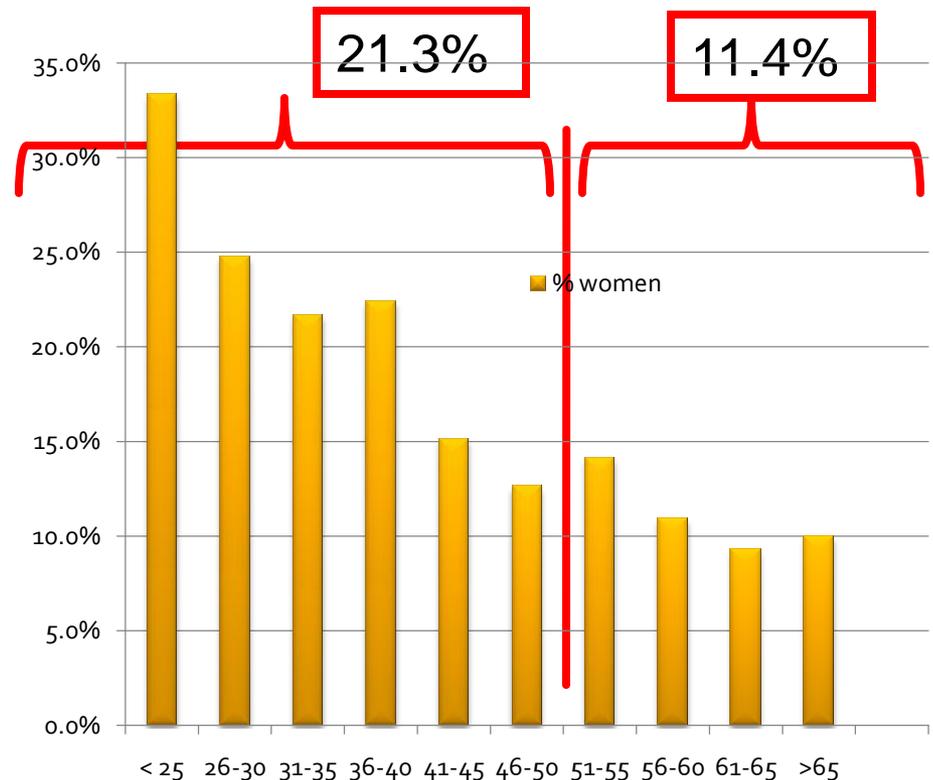


Age distribution on ATLAS - Women account for 15.6% of all people

Gender per age group



% of women per age group



50 year

% of women per country of institute and nationality (Turkey + countries with largest statistical samples)

Country	women	men	total	% women at institute	% women nationality
Grand Total	341	1825	2166	15.6%	15.6%
Turkey	4	9	13	30.8%	40.0%
Italy	47	151	198	23.7%	24.1%
France	27	113	140	19.3%	18.0%
UK	35	170	205	17.1%	15.3%
Germany	37	222	259	14.3%	11.2%
Canada	12	74	86	14.0%	17.9%
USA	56	385	441	12.7%	10.2%
CERN	15	105	120	12.5%	-
Czech Republic	5	58	63	7.9%	8.5%
Switzerland	2	25	27	7.4%	4.3%
Japan	4	78	82	4.9%	5.7%
Russia	5	105	110	4.5%	6.7%

country educating more women
physicists than hiring

country hiring more than
educating women in physics

PhD in Physics to women in the world: ATLAS collaboration follows same trend

Country (highest % in ATLAS)	% women with PhD	Nationality in ATLAS	Country (lowest % in ATLAS)	% women with PhD	Nationality in ATLAS
France	27%	18%	China-Taipei	13%	8%
Poland	23%	35%	United States	13%	10%
Norway	23%	15%	Sweden	13%	12%
Ukraine	23%	-	Canada	12%	18%
Australia	22%	20%	Mexico	10%	---
Turkey	21%	40%	Germany	9%	11%
India	20%	-	Switzerland	9%	4%
Denmark	17%	14%	The Netherlands	9%	7%
Lithuania	17%	-	South Korea	8%	-
United Kingdom	16%	15%	Japan	8%	6%

Data from 1996-2001 Source: Statistical Research Center, International Study of Women in Physics.

Women on ATLAS per nationality above ATLAS average

Nationality	# women	# men	total	% women	% error
Romanian	11	16	27	40.7%	9.5%
Turkish	8	12	20	40.0%	11.0%
Polish	12	22	34	35.3%	8.2%
Greek	17	34	51	33.3%	6.6%
Spanish	23	59	82	28.0%	5.0%
Italian	66	217	283	23.3%	2.5%
Israeli	7	26	33	21.2%	7.1%
French	28	132	160	17.5%	3.0%
Canadian	12	59	71	16.9%	4.4%
ATLAS average	349	1886	2235	15.6%	0.8%

Women on ATLAS per nationality at or below ATLAS average

Nationality	# women	# men	total	% women	% error
British	28	153	181	15.5%	2.7%
Norwegian	3	17	20	15.0%	8.0%
Swedish	4	30	34	11.8%	5.5%
German	31	247	278	11.2%	1.9%
American	26	223	249	10.4%	1.9%
Czech	6	67	73	8.2%	3.2%
Chinese	4	49	53	7.5%	3.6%
Dutch	3	41	44	6.8%	3.8%
Portuguese	2	29	31	6.5%	4.4%
Russian	9	132	141	6.4%	2.1%
Japanese	5	86	91	5.5%	2.4%
Austrian	1	20	21	4.8%	4.6%
Swiss	1	22	23	4.3%	4.3%

% of women per country of institute: ATLAS average is 15.6%

Country	women	men	% women	error on %	Country	women	men	% women	error on %
Georgia	3	0	100.0%	0.0%	Nederland	6	36	14.3%	5.4%
Colombia	1	1	50.0%	35.4%	Germany	37	222	14.3%	2.2%
Romania	9	9	50.0%	11.8%	Canada	12	74	14.0%	3.7%
Serbia	3	5	37.5%	17.1%	USA	56	385	12.7%	1.6%
Poland	7	14	33.3%	10.3%	CERN	15	105	12.5%	3.0%
Spain	23	50	31.5%	5.4%	Austria	1	9	10.0%	9.5%
Turkey	4	9	30.8%	12.8%	Portugal	2	21	8.7%	5.9%
Argentina	2	5	28.6%	17.1%	Czech Republic	5	58	7.9%	3.4%
Greece	9	24	27.3%	7.8%	Taiwan	1	12	7.7%	7.4%
Denmark	3	9	25.0%	12.5%	Switzerland	2	25	7.4%	5.0%
Italy	47	151	23.7%	3.0%	Japan	4	75	5.1%	2.5%
Brazil	2	7	22.2%	13.9%	Russia+JINR	5	105	4.5%	2.0%
Australia	3	11	21.4%	11.0%	Armenia	0	1	0.0%	0.0%
Sweden	7	27	20.6%	6.9%	Azerbaijan	0	3	0.0%	0.0%
Slovenia	2	8	20.0%	12.6%	Belarus	0	4	0.0%	0.0%
France	27	113	19.3%	3.3%	Chile	0	5	0.0%	0.0%
UK	35	170	17.1%	2.6%	China	0	14	0.0%	0.0%
Norway	3	16	15.8%	8.4%	Morocco	0	3	0.0%	0.0%
Israel	5	27	15.6%	6.4%	Slovakia	0	12	0.0%	0.0%

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Is the large fraction of women in a country related to the salary level?

High % of women

- In Georgia, Romania, Greece, Turkey
 - No male Georgian physicist works in Georgia
 - 11 male and 1 female Georgians outside Georgia
- Also high fractions of women in France, Italy and UK

Physicists salaries are low or modest in all these countries

Very low % of women

- In Japan, USA, CERN and Switzerland, salaries are high

Also very low % of women

in Russia or Czech Republic but salaries are not high there

This is not the only reason but there seems to be a correlation...

ATLAS women in their institutes

		# people in institute	
# women per institute	# institutes	Average # people	Range of people
0	58	6.4	1-41
1	28	9.0	2-46
2	27	11.4	4-29
3	21	11.8	3-33
4	12	15.2	9-36
> 4	21	22.7	10-120
341	167	11.0	1-120

- On average, each institute has 9 men and 2.0 women
- Half the institutes still have only one or no women

Women are generally fairly isolated

Women at big national laboratories

ATLAS Institutes	Country	women	men	% women
Argonne	USA	1	18	5.3%
Brookhaven	USA	0	41	0.0%
SLAC	USA	1	16	5.9%
DESY	Germany	8	20	28.6%
JINR	Russia	1	45	2.2%
RAL	UK	2	21	9.5%
Saclay	France	7	20	25.9%
CERN	CERN	15	105	12.5%
Frascati	Italy	5	13	27.8%

In general, big national laboratories are not setting an example for their countries, except for DESY, Saclay and Frascati which are above the national average

Most significant countries (< 3% error)

Nationality	# women	# men	total	% women	% error
Italian	66	217	283	23.3%	2.5%
French	28	132	160	17.5%	3.0%
British	28	153	181	15.5%	2.7%
German	31	247	278	11.2%	1.9%
American	26	223	249	10.4%	1.9%
Russian	9	132	141	6.4%	2.1%
Japanese	5	86	91	5.5%	2.4%
ATLAS average	350	1887	2237	15.6%	0.8%

ATLAS organization

ATLAS management:

spokesperson
2 deputy spokesperson
resource coordinator
technical coordinator.

Collaboration Board:

chair
deputy chair

“Executive tasks”

Project leaders:

SCT, Pixels, TRT
Inner Detector
Lar, TileCal
Muons
TDAQ

Executive Board

“Physics tasks”

Committees:

publication committee,
authorship committee
speakers committee

Operation tasks:

run coordinator
trigger coordinator
computing coordinator
data preparation coordinator
physics coordinator

Performance groups:

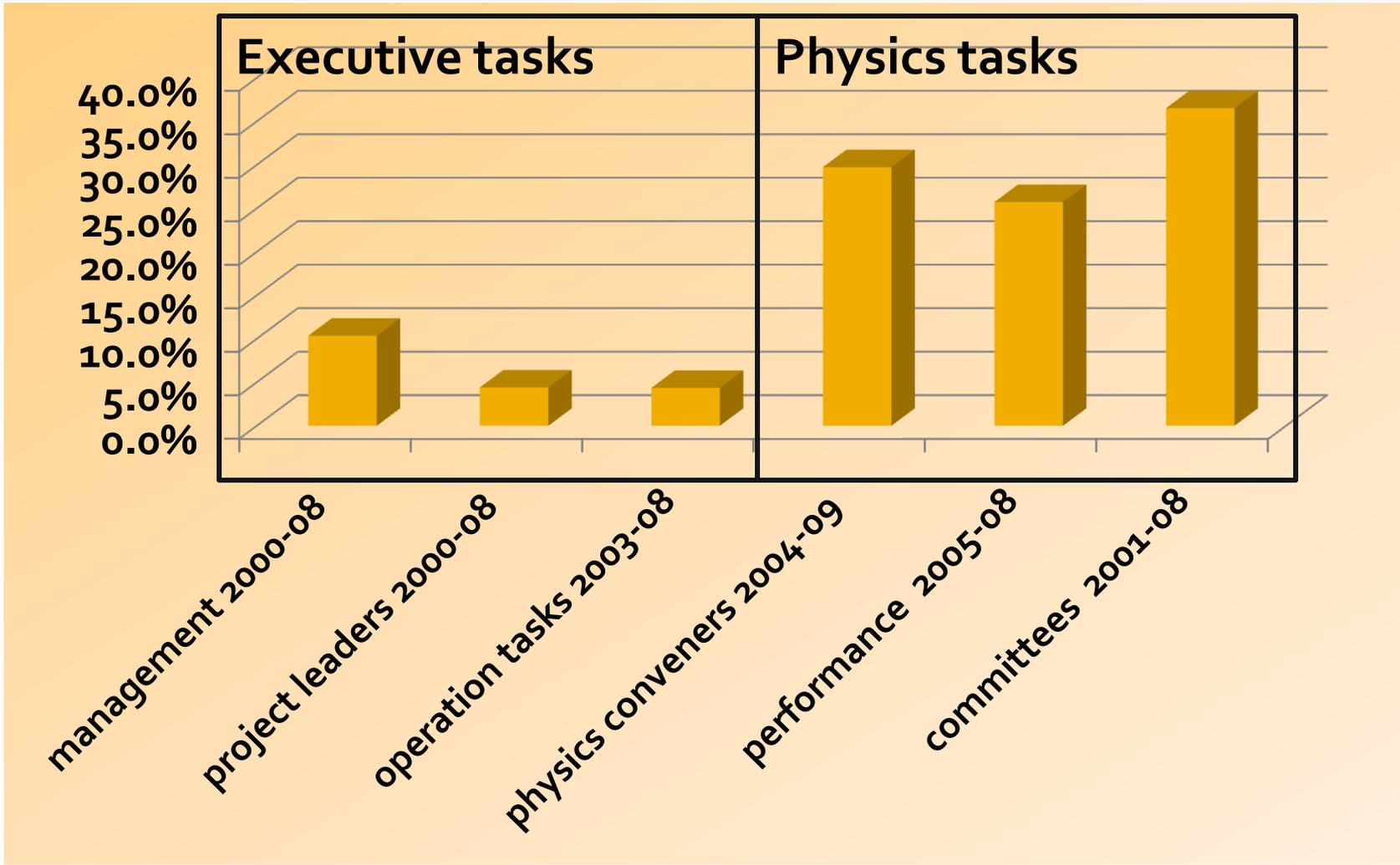
e/gamma
Muon
B-tagging
Jets/Etmiss
tau

Physics groups:

Standard Model
Higgs
SUSY
Exotics
Top
b physics

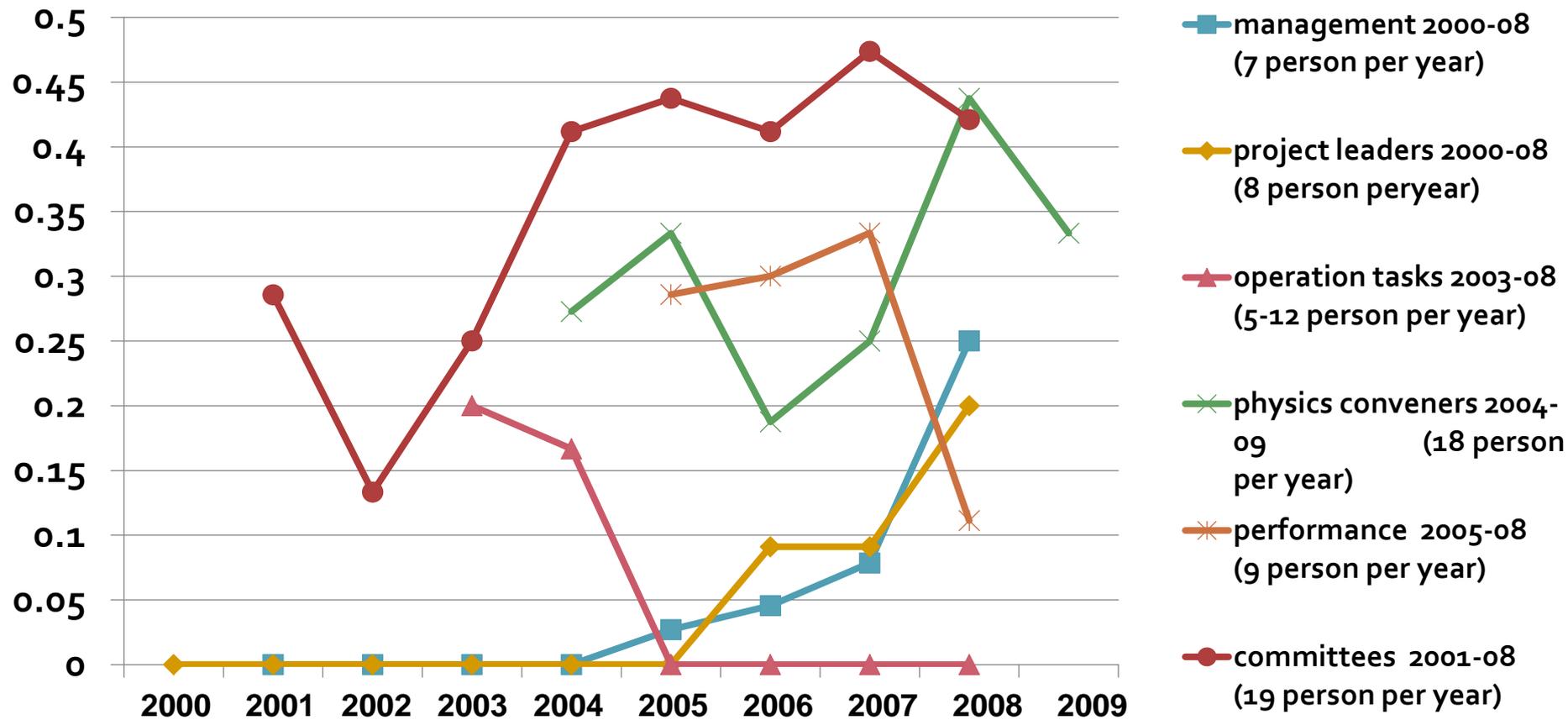
Responsibilities by gender in ATLAS (2000-08)

% of women per cumulative person year



Responsibilities by gender in ATLAS (2000-09)

evolution of % of women per year



What can be drawn on gender balance?

On the bright side:

- The fraction of women is increasing in ATLAS: many young women in the pipeline
- 26-37% of physics conveners and committee members are women, and this trend is increasing
- These women are gaining visibility and experience, and will be prime candidates for higher positions

On the not so bright side

- We still have a “leaky pipe”
- Women only account for 5% of the executive board cumulative but 14% today
- Many women are still isolated in their home institutes
- Most national labs have less women than universities

Engin was a founding member of the ATLAS Women's Network

- It all started as informal discussion during a coffee break at one large ATLAS collaboration meeting in October 2005
- A few of us met and planned the first meeting: a dinner out
- We made a mailing list and a web page to share information:

<https://uimon.cern.ch/twiki/bin/view/Atlas/AtlasWomenPage>



Photos taken a year later at the next collaboration meeting



ATLAS Overview week - 2007



Our activities

- Special activities during collaboration meetings:
 - lunches or dinners with informal presentations and discussions
- Weekly lunches at CERN for networking, break the isolation and share experiences
 - Good place for ATLAS women from outside institutes to network with other women when visiting at CERN
- We launched three important initiatives:
 - The CERN Ombudperson Initiative: developed the idea of a CERN-wide code of conduct and resources
 - The CERN Childcare initiative: evaluate needs of CERN parents for daycare facilities (both Users and staff)
 - The Engin Arik Fellowship given to outstanding Turkish students to participate in the CERN Summer Students Program

Make women more visible

- We will continue to suggest qualified women in future elections at various positions
- The idea is to give a chance to as many qualified women as possible
- We now have several women in the highest executive positions



Fabiola Gianotti
Spokesperson
Mach 2009



Kerstin Jon-And
Chair Collaboration
Board 2006-2010



Pippa Wells
SCT Project Leader 06-09
ID Project Leader 2009



Isabelle Wingerter
LAr Project Leader
2007-ongoing

How to grow bigger and better?

- We are still facing lots of reluctance from many female colleagues
 - Fear of being seen as a feminist
 - Don't want to be part of a discriminated group
 - Many women do not think there is discrimination
- Many cultural differences
- But despite all that, we're still there and creating links with other women all over CERN through the various initiatives

Engin as a mentor



Özgen Berkol Dogan, Metin and Engin Arik, and Engin Abat at the International Student Congress of the Balkan Physics Union (ISCBPU-5) in Bodrum (Aug 2007)

CERN Summer Student program

- Every Summer, CERN welcomes ~150 students
https://ert.cern.ch/browse_intranet/wd_pds?p_web_page_id=5836
- Morning lectures in HEP and hands-on work in the afternoon
- Students must have completed at least 3 years of undergraduate physics, engineering or computing studies
- Special program for non-member states students such as Turkish students in physics and engineering:
 - **deadline for application is 13 Feb 2009**
 - https://ert.cern.ch/browse_intranet/wd_map?p_web_site_id=1&p_format=full&p_class_type=Programme&p_class_value=Special%20Programmes&p_title=Students
- Candidates for the Engin Arik Fellowships are selected among all Turkish applicants to this program and is based on merit in addition to those already selected in the program

The Engin Arik Fellowship

- At the initiative of the ATLAS Women's Network, and with help from John Ellis (CERN Non-Member States Program), Konstantin Zioutas (CAST) and Peter Jenni (ATLAS), a fellowship was setup to bring Turkish students to come to CERN for a summer
- Candidates are selected based on merit from all Turkish applicants to the CERN Summer Student program for non-member states in addition to those already selected
- Funds were collected from private donations and various institutes (ATLAS, Patras and Athens University, CERN, Engin's family)
- The fellowship will be offered as long as funds remain available (will be at least 5 years from contributions received so far)
- For more info on how to contribute: see
 - http://atlas-service-ews.web.cern.ch/atlas-service-ews/features/features_engin.php

The Engin Arik Fellow for 2008

- **Seda Persembe**, a physics student from Kirikkale University in Ankara, received the 2008 Fellowship
- She joined the other CERN summer students
- Seda says “I got to know Engin in a workshop organized by the Turkish Accelerator Center project and she was my inspiration to take on the challenge of particle physics.”
- Seda worked on an ATLAS upgrade project on MicroMEGAS detectors and tested the associated electronics in a test beam experiment.

From Seda Persembe



“As a woman in science, Engin’s personal and professional level in physics impressed me very much. From her eyes, you could easily understand that she believed in science.

She was the one who motivated me to take on the challenge of physics. She was the source of inspiration for me and other young physicists. She had endless enthusiasm for teaching. Engin believed in particle physics and performed it well. She fought with great devotion to promote particle physics in Turkey.

As I always say, Engin’s blue-eyes light is still over my shoulder and will continue to be with me.. Now my goal is to find a challenging Ph.D. program on ATLAS to launch my scientific career. “

Seda in front of the test beam setup



The Engin Arik Akbank Fellowship

- Under the initiative of Bilge Demirkoz, Akbank agreed to support two students for the summer 2008.
- Akbank provided the financial support for two Turkish students to participate in the CERN Summer Student Program
- Turkish Airlines offered reduced airfares to fly the students to Geneva

The Engin Arik Akbank Fellows 2008

Bilge Demirkoz (CERN)
Mesut Arslanok and
Cemile Ezer,
(Engin Arik Akbank
fellows for 2008),
and Murat Gollu, from
Akbank's corporate
communications
department



Mesut Arslandok



“I can honestly say that participating in the Summer Student Program is the best experience I ever had. I worked on the Time Projection Chamber detector for the ALICE experiment. Thanks to this project, I have been accepted to the Helmholtz Research School in Germany. That is to say, it has had the best impact on my career. In addition I met many people from different countries and the social activities were wonderful. Participating in the CERN Summer School made my dreams come through.”

Cemile Ezer

- “It was quite sad for me. I visited the offices of Mrs. Arik and Berkol. I saw their work on the CAST magnet, met with their friends and stayed in their offices. It was a very emotional journey for me.
- The Engin Arik scholarship taught me so many things. Students came from 52 different nations, just for the love of science.
- We had the opportunity to take lectures from the experts and ask all questions puzzling us, even to John Ellis!
- It was quite hard for me to adapt to programming. Before I was doing theoretical physics. Now my scientific point of view is quite changed. I like doing experiments and working together with big groups of people.
- Before, I never thought about doing something just for the sake of science and I was not that comfortable with myself. Now I am.”

More from Seda:

- On 14 April 2008, Okay Çakıroğlu, president of the Turkish Atomic Energy Authority visited CERN. Çakıroğlu and CERN's director-general, Robert Aymar, signed an international cooperation agreement. This is an important milestone towards Turkey's membership of CERN given that Turkey has been an observer state of CERN since 1961... !
- The Turkish physicists at CERN are working hard towards increasing the Turkish impact at CERN and all of us is looking forward to the day when the Turkish flag will also be flying by the CERN gate.



Prof. Dr. Engin ARIK
(1948-2007)

Araş. Gör.
Özgen Berkol Doğan
(1980-2007)

Engin ABAT
(1979 -2007)

With this Fellowship, my hope is that through all the bright, young people who will keep coming to CERN, our ties with the Turkish physics community will keep expanding, continuing the work pioneered by Engin and keeping Engin, Berkol and Engin's spirit alive.