



Funded by the  
European Union

Erasmus+ Mundus Joint Degree

*Master in Astrophysics and Space Science*

**MASS**

*Nicola Vittorio*

*29/11/23*

If you have MASS

**You MATTER!!!**

# Mass – Why?

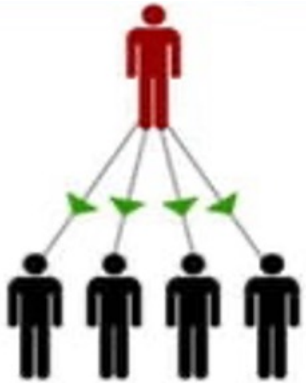
- A pre-existing network
  - *Erasmus Mundus Master Course in Astrophysics - AstroMundus*
    - 1st Cycle, Editions 1 to 5, 2010 – 2016
    - 2nd Cycle, Editions 6 to 8, 2016 – 2020
- **AstroMundus Consortium**
  - *University of Innsbruck*
    - Leading institution
  - *University of Belgrade*
  - *University of Göttingen*
  - *University of Padua*
  - *University of Rome “Tor Vergata”*



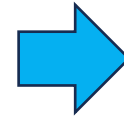


# MASS – Why?

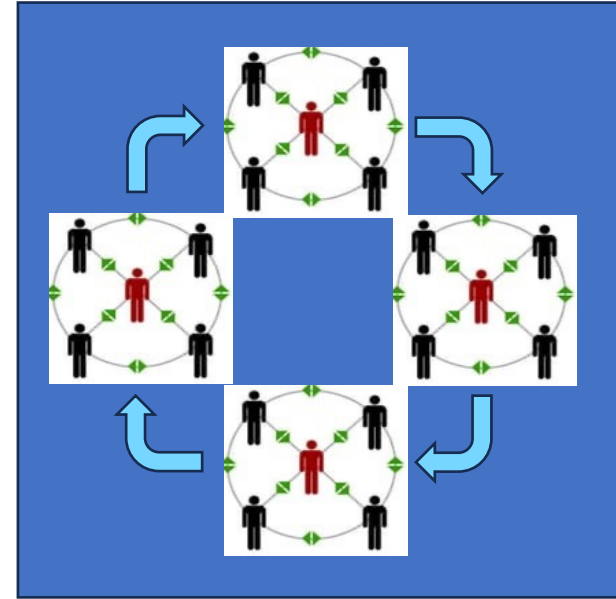
Teacher-centered teaching



Student-centered teaching



Shared Student-centered teaching



# MASS- When?

## • Call

- *Erasmus Mundus Joint Masters (ERASMUS-EDU-2021-PEX-EMJM-MOB)*
- *Work programme year ERASMUS-2021*
- *Published: 25.03.2021*
- *Deadline: 17.06.2021*
- *Available budget: EU 122 000 000*

## • Evaluation Results

- *Number of proposals submitted: 70*
- *Number of inadmissible proposals: 1*
- *Number of ineligible proposals: 1*
- *Number of above-threshold proposals: 62*
- *Total budget requested for above-threshold proposals: EUR 280 147 200*
- *Number of proposals proposed for funding: 27*

## • MASS

- *The only one (out to 27) to have an Italiana leading Institution*

# MASS – What?

- **Mass Consortium**

- *University of Rome “Tor Vergata”*
  - Leading institution
- *University of Belgrade*
- *University of Bremen*
- *University of Cote d'Azur*

- **Associated partners**

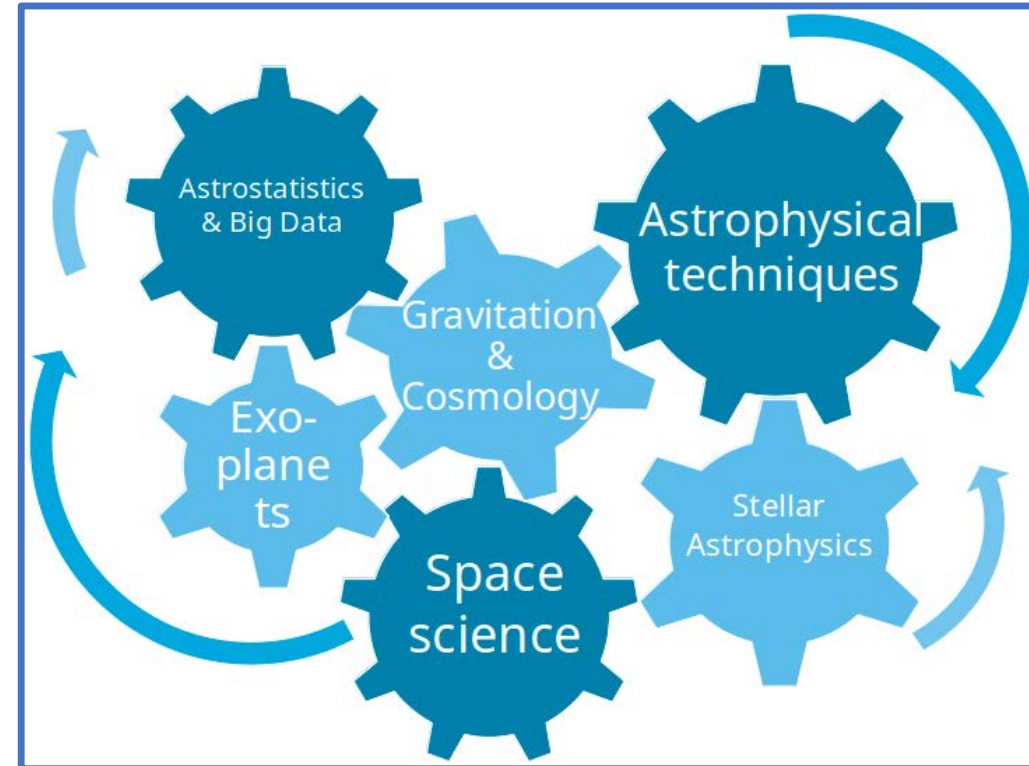
- *Public research institutions*
  - National Institute of Astrophysics – INAF
  - Observatoire de la Cote d’Azur
  - Astronomical Observatory of Belgrade
- *National Space Agencies*
  - Italian Space Agency - ASI
- *Small and medium enterprises*
  - EIE Group
- *Space industries*
  - Thales-Alenia Space
  - OHB



# MASS – What?

- **MASS students will be exposed**

- *To the theoretical aspects of Astrophysics, Gravitation and Cosmology*
- *To the knowledge/use of observational facilities and/or to the data reduction techniques*
- *To the science exploitation of big data set coming for current/ forthcoming ground-based or space-borne experiments*
- *To the knowledge and skills useful to*
  - continue their career in PhD programs,
  - move to the private sector

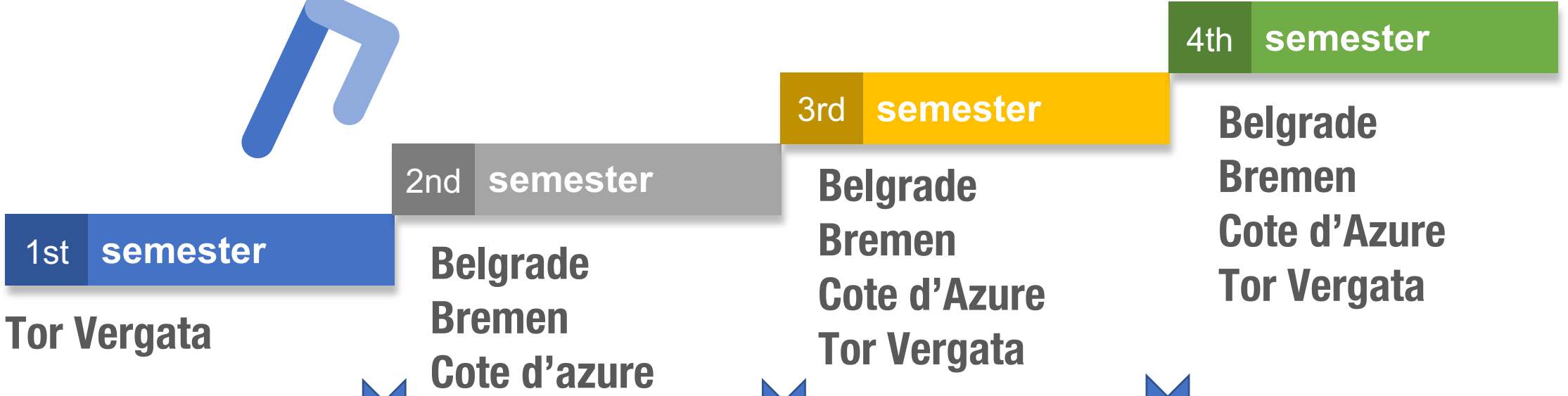




# MASS work flow



INFODAY ERASMUS+ CALL 2024



Milan - November



# MASS 1<sup>st</sup> Edition: Winter School

10



TOR VERGATA  
UNIVERSITÀ DEGLI STUDI DI ROMA  
Dipartimento di Fisica



Dipartimento di Fisica  
Winter School - MASS

## Astrostatistics and Big Data approaches

Erasmus Mundus Joint Master in  
Astronomy, Astrophysics and Space Science

16-17/01/23

ASI (Sala Cassini)

18/01/23

Aula 17

MASS

MASTER IN ASTROPHYSICS AND  
SPACE SCIENCE



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MASS MASTER IN ASTROPHYSICS AND  
SPACE SCIENCE

TOR VERGATA  
UNIVERSITY OF ROME

UNIVERSITY OF  
BELGRADE

University  
of Bremen

UNIVERSITÉ  
CÔTE D'AZUR



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# Mass 1<sup>st</sup> Edition: Summer School

11



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## Foundations and Applications of General Relativity MASS Summer School - Bremen 2023, July 17<sup>th</sup> - 21<sup>st</sup>

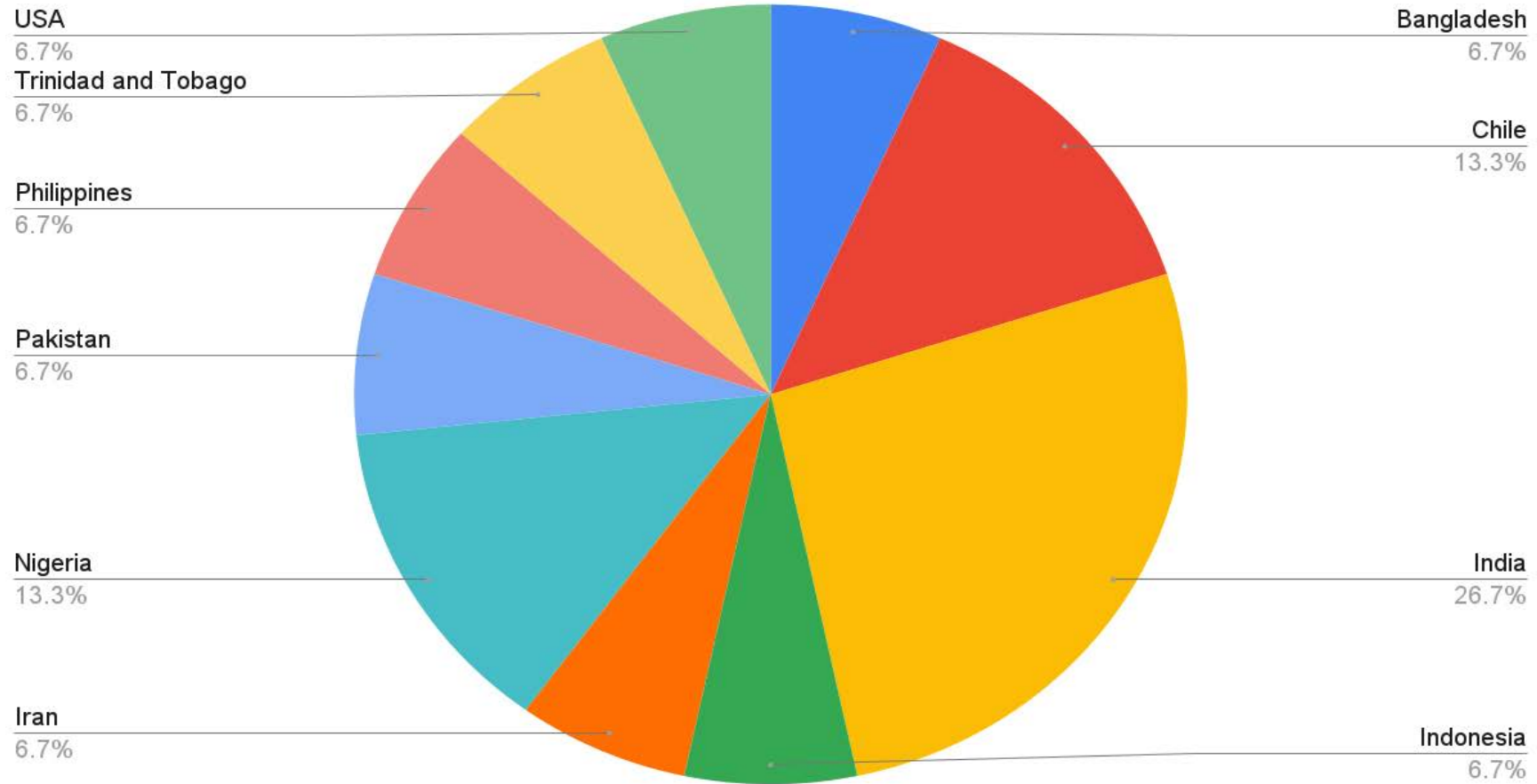
	Monday	Tuesday	Wednesday	Thursday	Friday
09:00 - 10:30	Lecture I Philipp	Lecture II Giulini	Lecture V Perlick	Lecture V Perlick	Lecture X Lämmerzahl
10:30 - 11:00	Coffee break				
11:00 - 12:30	Lecture II Giulini	Lecture IV Dittus	Lecture VI Tsupko	Lecture VIII Scharringhausen	Lecture XI Leftley
12:30 - 14:00	Lunch break				
14:00 - 16:00	Lecture III Merkle	Excursion I: <a href="#">OHB</a>	Lecture VII Ladstätter	Lecture IX Ilić	Lecture XII Reese
16:00 - 16:30	Coffee break				
16:30 - 18:00	Discussion	Discussion	Excursion II: <a href="#">DLR</a>	Excursion III: <a href="#">ZARM</a>	Discussion
18:00 - .....	barbecue	City Tour			



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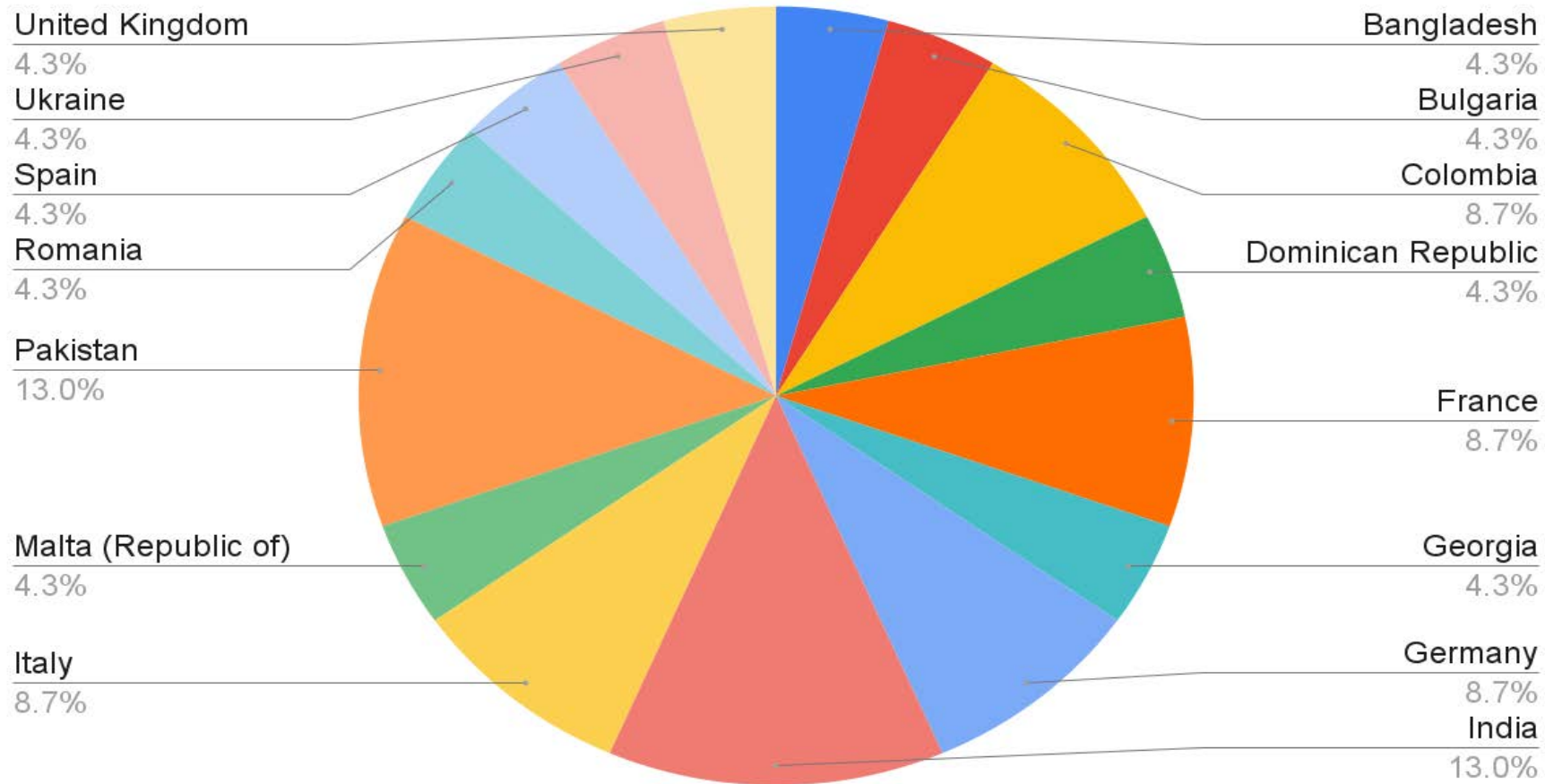
# MASS 1<sup>st</sup> Edition: AY 22/23

Attending students per Nationality 1st Edition - Tot 15

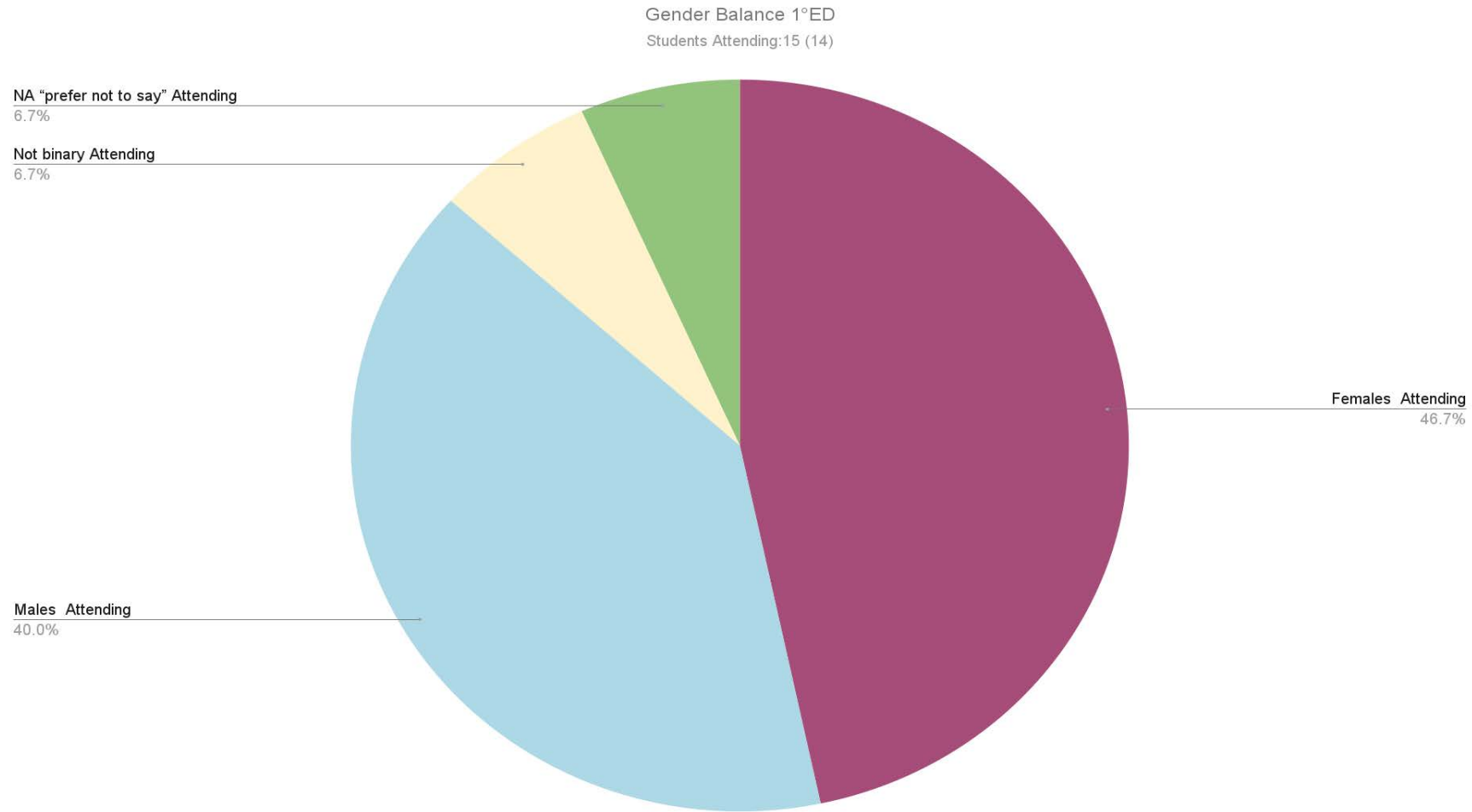


# MASS 2<sup>nd</sup> Edition: AY 23/24

Attending students per Nationality 2nd Edition - Tot 23

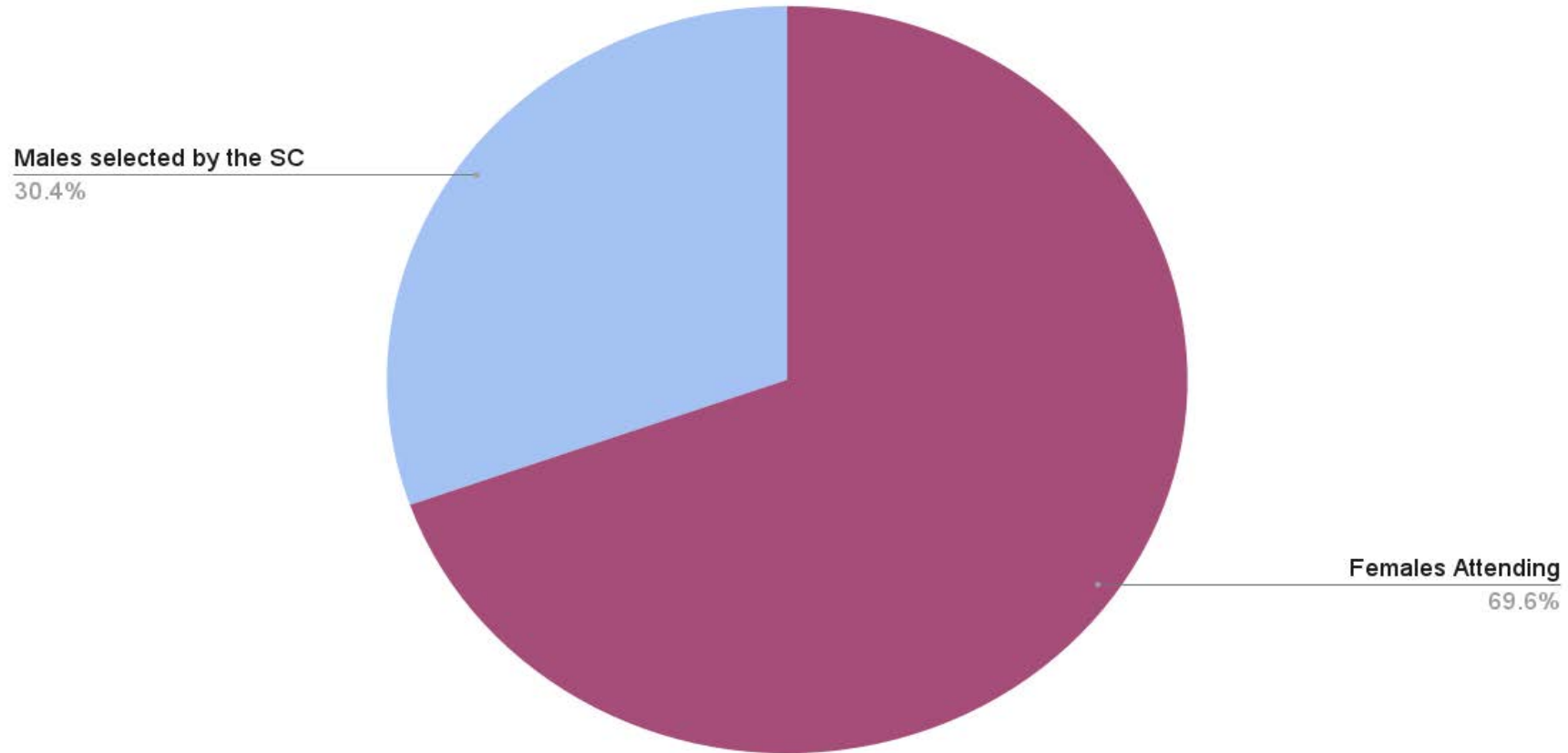


# MASS 1<sup>st</sup> Edition: AY 22/23



# MASS 2<sup>nd</sup> Edition: AY 23/24

Gender Balance 2°ED  
Students Attending: 23





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UNIVERSITY OF ROME



UNIVERSITY OF  
BELGRADE



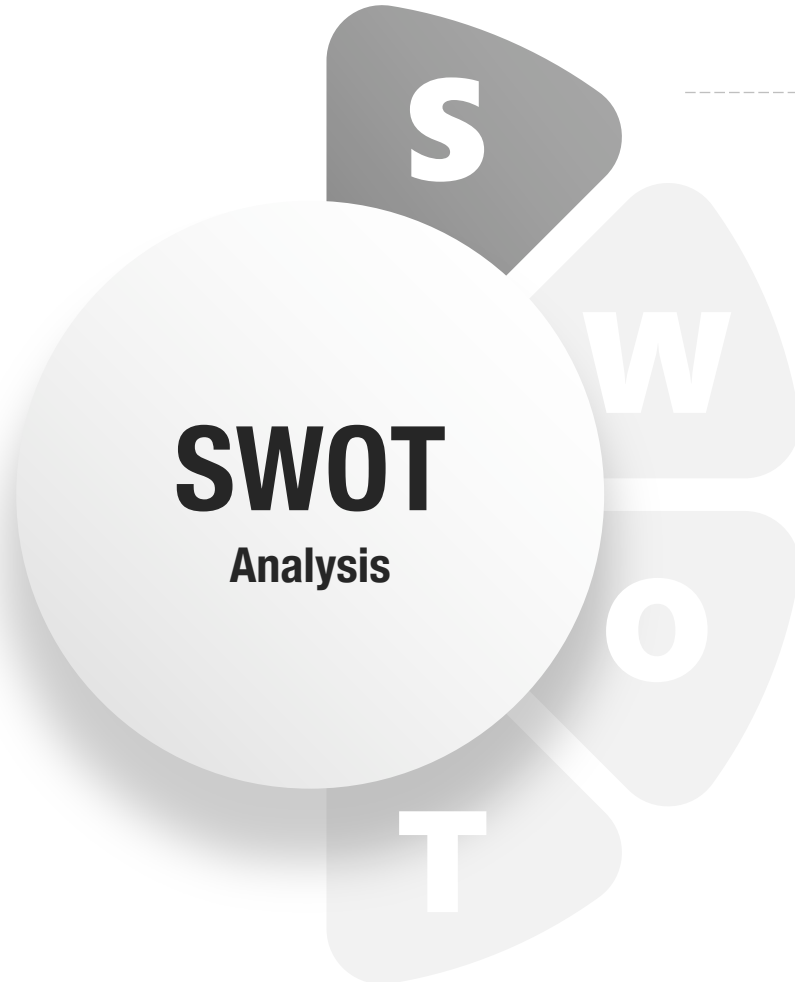
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of Bremen



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## STRENGTHS

- **Shared objectives**
  - *Both educational and research*
- **Complementarity of the nodes**
  - *Teaching/research activities*
  - *External international collaborations*
  - *Thesis co-supervision*
- **Consortium Agreement**
  - *Executive Board*
  - *Selection Committee*
  - *Teaching Committee*
  - *Quality Evaluation Committee*
  - *External Advisory Board*
- **Very selective admission procedure**





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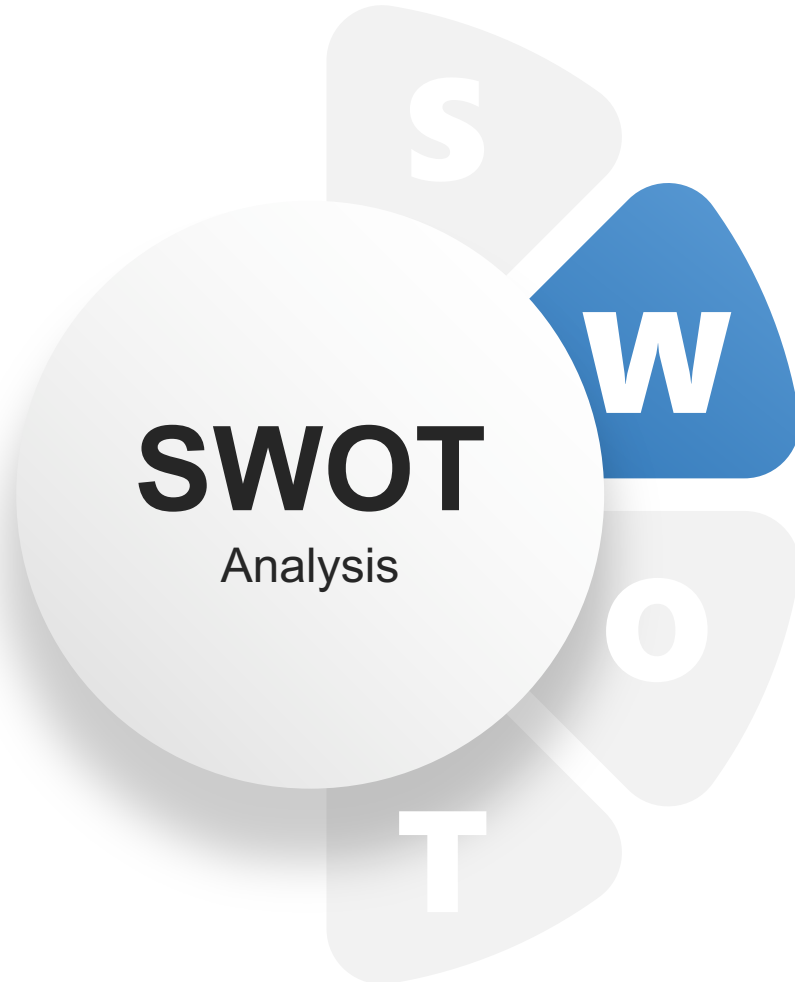
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## WEAKNESSES

- **Bologna Process not fully implemented**
  - *Out of phase semesters*
  - *ECTS for single course or for the whole semester*
- **Multiple Degree**
  - *Sharing a curriculum or single courses*
- **Enrollment procedure**
  - *In the leading and partner institutions*
  - *VISA issuing procedures*



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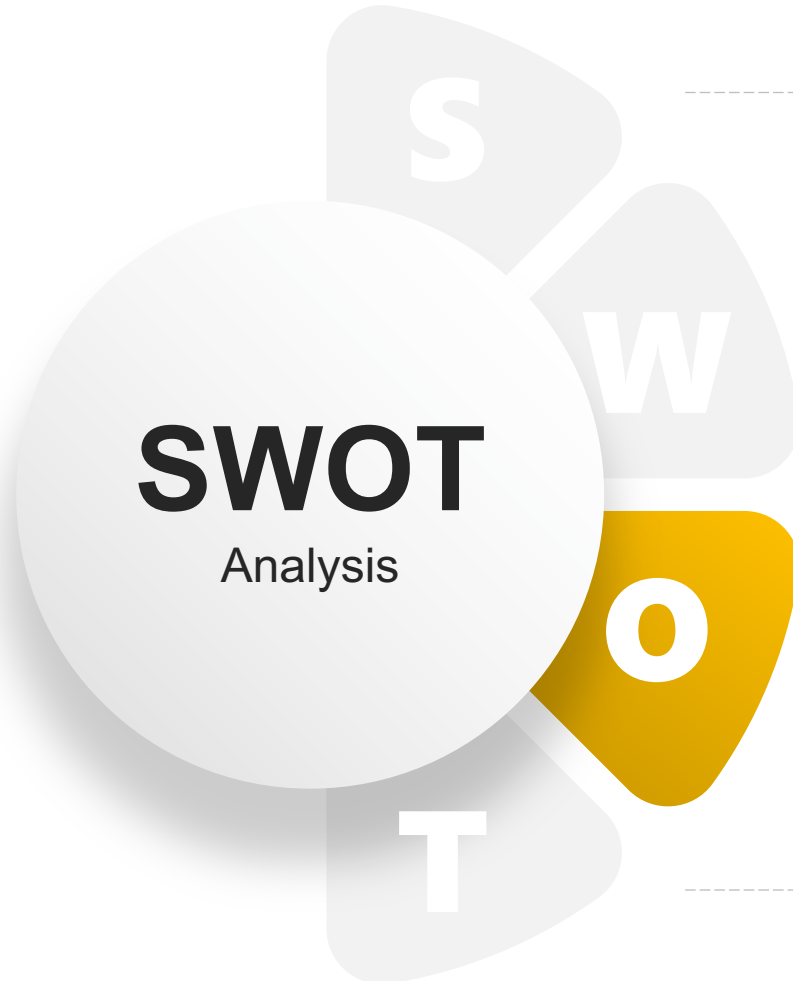
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## OPPORTUNITIES

- Realizing a unique Master's offer
  - *in Astrophysics and Space Science*
- Having the most talented students
  - *from all over the world*
- Offering stages and internships
  - *ESA, ESO, ASI*
  - *Small and medium enterprises*
- Offering PhD programs in the network
  - *PhD Course in Astrophysics and Space Science*
    - *Università di Roma «Tor Vergata» and Sapienza, INAF and ASI*



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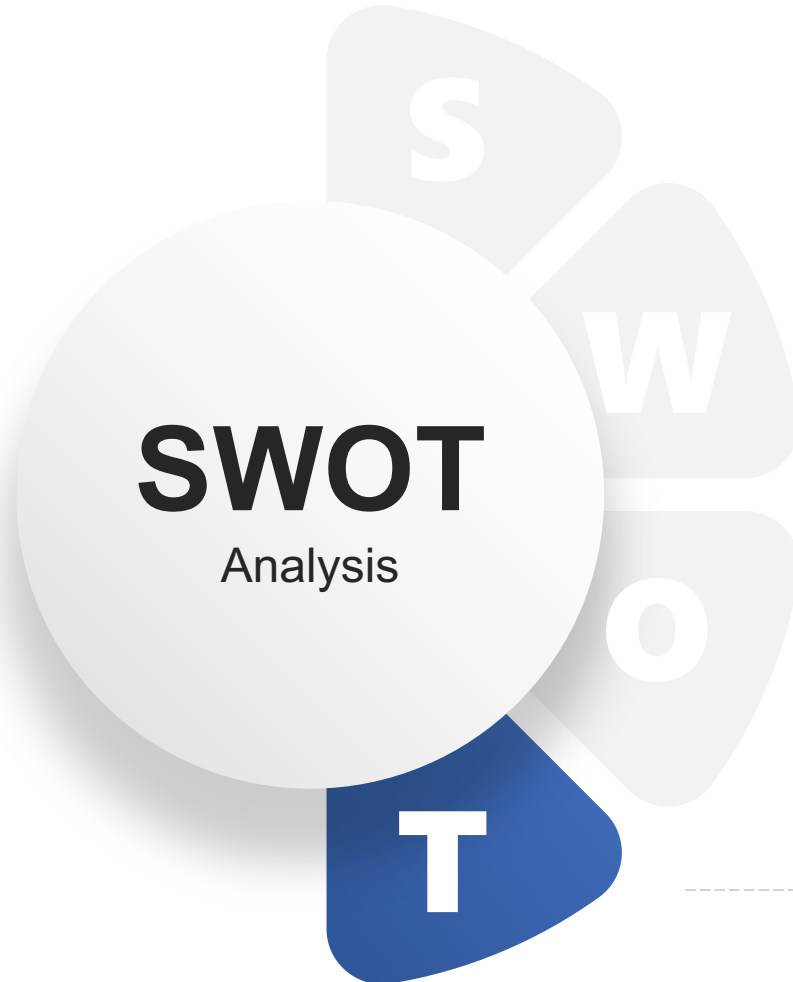
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## THREATS

- **Difficulty in issuing a Joint Degree**
  - *European accreditation of the same course offered in all the member universities*
- **Sustainability of the MASS program**
  - *ASI provides one fellowship for each of the last three editions (AY 23/24, 24/25, 25/26)*

# Thank you!