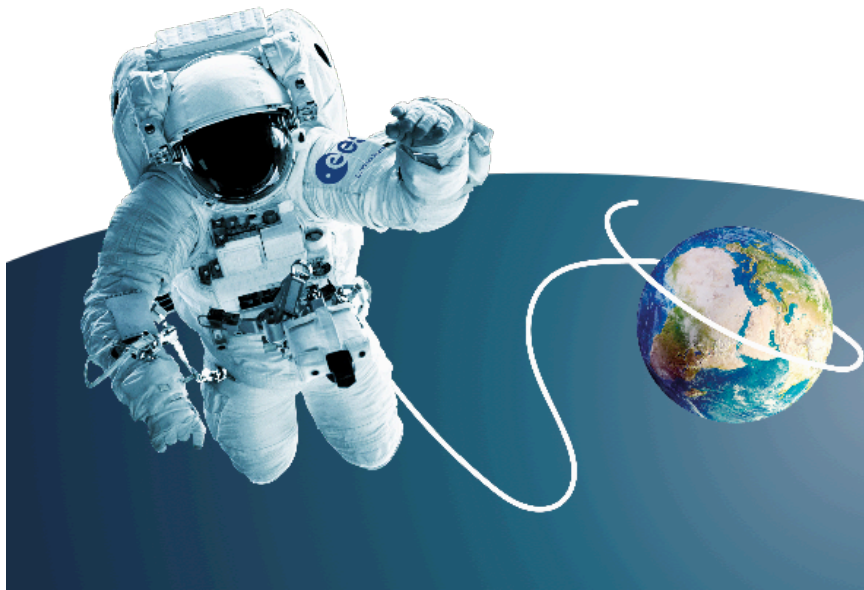




The MELISSA Foundation and the future of ESA sponsored LSS research via the Pool of MELISSA PhD (POMP project)

Max Mergeay

MELISSA Conference - virtual meeting
3-5/ 11/ 2020 (UGent)





The MELISSA Foundation



- *The MELISSA Foundation is a non-profit organization created by the MELISSA partners to finance and harmonize MELISSA PhDs and PostDocs. The MF is domiciliated in Brussels, Belgium.*
 - *The MELISSA Foundation is hosting as well all education (POMP programme of PhD fellows, coordination with other MELISSA-oriented PhD fellows) and communications issues linked to the scientific production of the MELISSA Project, this in collaboration with IDDUP in charge on the website of the MF.*
- www.melissafoundation.org
- Directorship: **Berangere Farges, Max Mergeay, Rob Suters**



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Rob.suters@melissafoundation.org





POMP & MELiSSA Ph.D project



- **POMP = Pool Of MELiSSA Ph.D. supported by some ESA member states:**
 - ✓ Belgium
 - ✓ Romania
 - ✓ Ireland
 - ✓ Switzerland
 - ✓ Spain
 - ✓ United Kingdom
- **3 programmes POMP up to now:**
 - ✓ POMP 1: 2016
 - ✓ POMP 2: 2018
 - ✓ POMP 3: 2021

- **Become a POMP student is:**
 - ✓ a PhD scholarship for 4 years
 - ✓ 3 years in one of the best European Universities
 - ✓ 1 year within the MELiSSA project in the laboratory of a MELiSSA partner
 - ✓ the opportunity to integrate the MELiSSA PhD pool, to attend the MELiSSA conference, to participate to the MELiSSA summer University, to benefit of ESA support to create a Spin-off company, ...

- POMP 1 – 5 countries

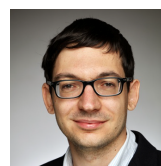
Name (nationality)	Position	Subject	University	MELISSA partner	Current status
 Jolien De Paepe (B)	PhD	Preparing Nitrogen recycling Processes in the MELiSSA loop for operation in microgravity conditions by novel process control and sensing	U. Gent (Belgium)	UAB	PhD obtained in October 2020
Tom Sassen (NL)	PhD	Genetic stability of MELiSSA	U. Cork (Ireland)	SCK.CEN	Resignation
 Justyna Barys (Pol)	PhD	Preparation of MELiSSA Pilot Plant C3 for introduction of urine as a nitrogen source	UAB (Spain)	UCA/Ugent	Resignation
Radu Mircea Giurgiu (R)	Post-doc	From waste to taste: closing the MELiSSA loops under the framework of the Semilla Sanitation hubs project (LSS)	U. Cluj-Napoca (Romania)	IPStar	Finished

- Italy (UNapoli) : special MELiSSA program (C4b: plant compartment) with active collaboration with POMP countries
- ✓ 3 doctorates accomplished: Dr Luigi Izzo, Dr Christoph el-Nakhel, Dr Giuliana Senatore

POMP 2: from 2018 to ...

- POMP 2 – 5 countries

Name (nationality)	Position	Subject	University	MELISSA partner	Current status
Carles Ciurans	PhD	MELISSA Overall Control Loop and Possible strategy	UAB (Spain)	UCA	In progress
Grace Crains (USA)	PhD	Hydroponic crop production with human derived waste products	ETH Zürich (Switzerland)	U. Gent	
Valentin Faust (CH)	PhD	Alkalinity-limited urine nitrification for space application - Process stabilization	ETH Zürich (Switzerland)	U. Antw	
Ellen Harrison (UK)	PhD	The use of synthetic ecology for the provision of vitamin B12 for human consumption on long space missions	U. Cambridge (United kingdom)	SCK.CEN	
Van Tinh Nguyen (Viet)	PhD	Definition and characterization of the metabolic interactions within the microbial community of the MELISSA waste degradation compartment C1	K.U.Leuven (Belgium)	UCA	
Pietro Guarato (I)	Post-Doc	Closing anthropogenic carbon loops: towards implementing a circular economy	U. Lausanne (Switzerland)	Sherpa	





Results POMP 1 and 2



- Better stability of MELiSSA R&D due to 4 years cycles which overcome the ESA ministerial cycle of 3 years
- Re-inforcement of MELiSSA partners collaboration thanks to students exchanges: MELiSSA has its own Erasmus Program!!
- Bibliography of the MELiSSA project:
 - ✓ MELiSSA topics and Space research involving all MELiSSA partners
 - ✓ Monthly updated on the MELiSSA Foundation website managed by IDDUP
 - ✓ 14 publications up to now for POMP & UNINA PhD (period 2017-20)
- Creation of one spin-off: HYDROHM



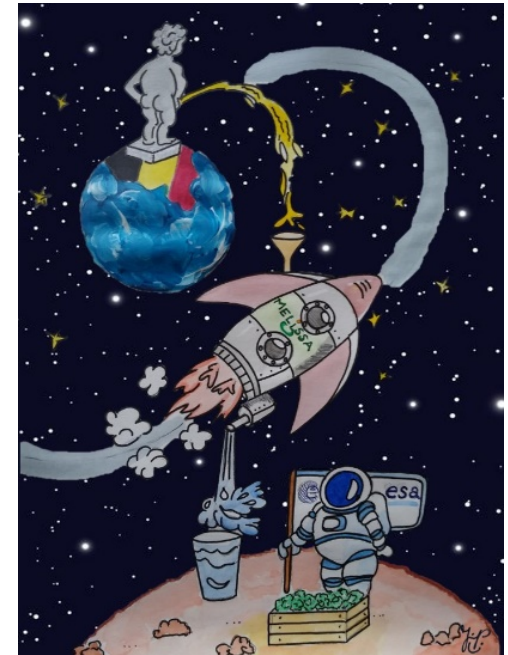
- Participation to IGLUNA an event organized by the Swiss Space Center focused on human habitat in Space and animated by POMP fellows. One of the highlights of this event is the communication impact.

- Participation to the MELISSA Summer University
11-14/06/2019 .. – Station Biologique-Besse-et-Ste-Anastasie – France



**Registration is open for the next
MELISSA Summer University
1-3/10/2021
Varna – Bulgaria**
**- Open to all PhD students interested
in Life Support in Space**

- **POMP 3 – call in december 2020**
- Objective :
 - ✓ **Better harmonisation,**
 - ✓ **Open to the outside world to be labelled MELiSSA**
 - ✓ **Research of co-funding**
 - ✓ **Participation to the MSU 2021, IGLUNA 2021**
- Coordination with:
 - ✓ **the Urinis PhDs - Urine nitrification in Space (UGent/UA, UMons and SCK•CEN)**
 - ✓ **other non-POMP Space & Life Support PhD projects**
- Focus on a community of Life Support PhD's (financed in different ways) via MSU (MELiSSA Summer University) and similar programs



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THANK YOU.

www.melissafoundation.org

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