

Broadband MEMS-based InfraRed spectrometers: The core of a multipurpose spectral sensing photonic platform

BROMEDIR Introduction

The project aims to innovate by developing a new generation of miniaturized FTIR (Fourier Transform Infrared) and PTS (Photothermal) spectrometers for liquid and gas sensing applications respectively. In addition, a new cloud-based platform will be developed for enabling advanced data analytics. Therefore, the overall system approach intends also to achieve faster data analysis, with results easily accessed from anywhere by the end-user.

Project Objectives

- Develop the novel FTIR and PTS spectrometers
- Develop the new integrated and flexible platforms
- Tests and validations of the innovations developed
- Wide-scale but also audience-specific communications to demonstrate the results and overall value to all stakeholders



PROJECT WORK COMPLETED

TECHNICAL UPDATES UP TO PROJECT MONTH 12

BROMEDIR USE CASES

The 3 use cases of the project are:

- 1) Sustainable farming
- 2) Hydrogen supply chain
- 3) Fuel quality control

Featured in previous Newsletter Vol. 01



SUMMARY OF WORK COMPLETED UP TO MONTH 6

- User & stakeholders requirements
- Validation scenarios
- System requirements & conceptual designs

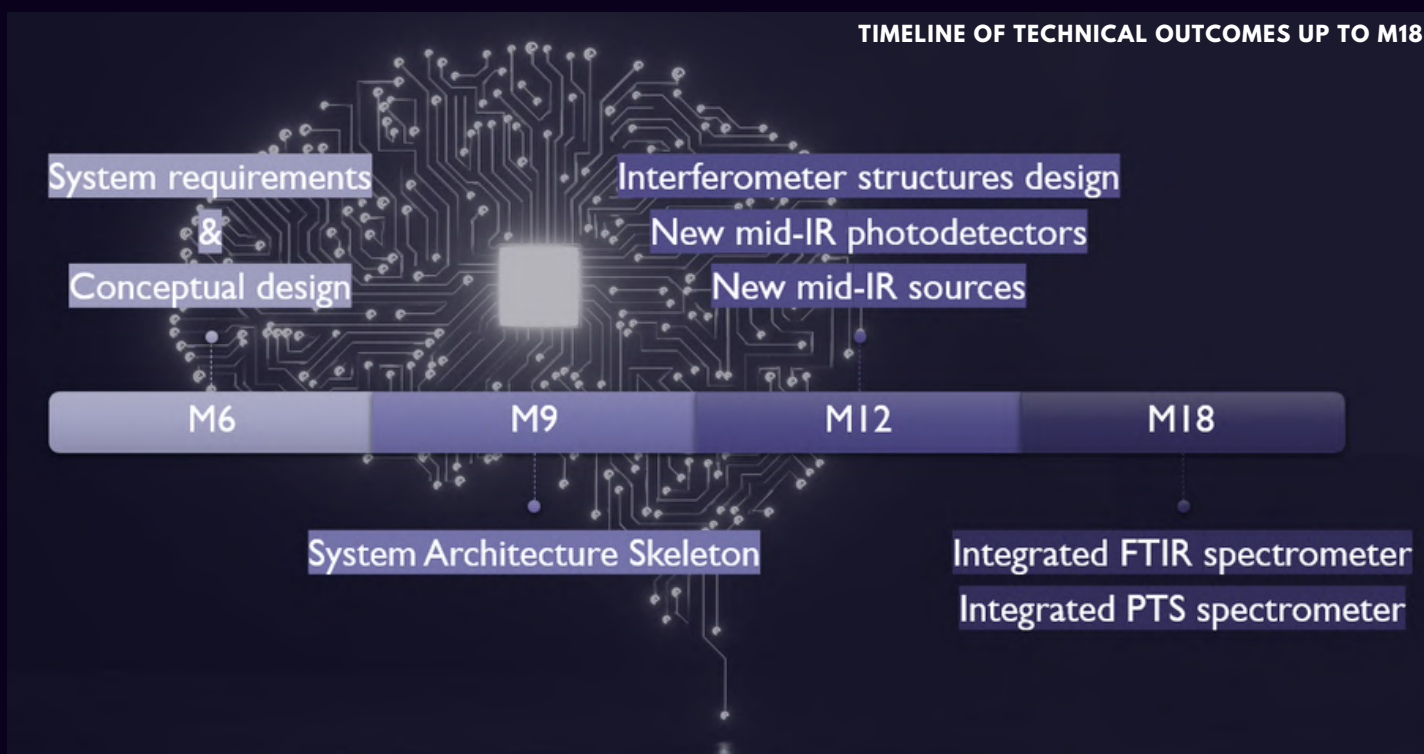
TECHNICAL UPDATES FROM M6 TO M12

SYSTEM ARCHITECTURE SKELETON

This work provides the overall System Architecture Skeleton and the integration roadmap of the different systems, with their various subsystems and components for a timely delivery of each BROMEDIR instrument.

INTERFEROMETER STRUCTURES DESIGN V1

As part of this work, two distinct Photonic Integrated Circuits (PICs) were designed as the core elements for FTIR and PTS spectrometers.



PROJECT WORK COMPLETED

TECHNICAL UPDATES UP TO PROJECT MONTH 12

»» NEW MID-IR PHOTODETECTORS V1

As part of this work the new mid infrared detectors were developed. The new mid-IR photodetectors will be used for a milk analysis Fourier-Transform InfraRed (FTIR) system (use case I) and a fuel quality control FTIR system (use case III).

»» NEW MID-IR SOURCES V1

Within this project task, the novel mid infrared light sources were developed for the three use cases. The different requirements for the light sources were first defined for each use case and, based on these specific requirements, the first versions of the light sources were delivered.



»» TECHNICAL UPDATES COMING UP NEXT ..

- Photonic Integrated Circuits (PICs) for FTIR and PTS
- Integrated FTIR spectrometer
- Integrated PTS spectrometer
- Validation protocols

To be featured in next Newsletter Vol.03

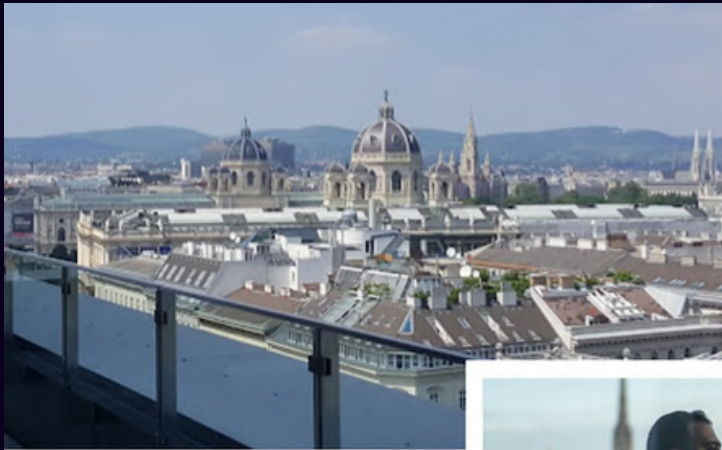
DISSEMINATION & COMMUNICATION

NEWS FROM BROMEDIR CONSORTIUM MEETINGS

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The Consortium meets regularly via online meetings where partners can share updates, discuss issues, and results. In addition, BROMEDIR holds in-person meetings every six months with an opportunity for a different partner each time to host the event.

»» M12 MEETING



**M12 BROMEDIR
CONSORTIUM MEETING
HOSTED BY PROJECT
PARTNER TU WIEN**

**22-23 JANUARY
2024, VIENNA,
AUSTRIA**



A two-day meeting was hosted by project partner TUW in Vienna, Austria and included presentations on work performed, technical updates, discussions on various project matters, lab visits and informal catching up between colleagues from all partners.



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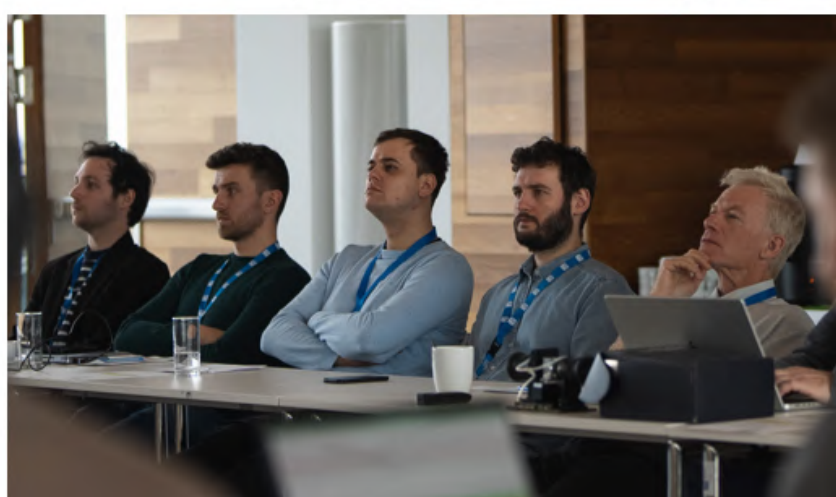
NEWS FROM BROMEDIR CONSORTIUM MEETINGS

The project meeting at TUW premises was a great opportunity for all partner teams involved in the BROMEDIR Consortium to come together and discuss in-person the work in progress.



Numerous presentations shared by partners on all work packages and further discussed in more depth any technical matters, issues and solutions.

Decisions were also taken on next actions and tasks for the upcoming 6 months of the project.



DISSEMINATION & COMMUNICATION

NEWS FROM BROMEDIR CONSORTIUM MEETINGS

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After the first day meeting, BROMEDIR teams also had the opportunity to visit various labs and experience in-person the exciting work of TUW colleagues.

The time available to catch up, exchange news and other ideas was invaluable.



»»» UNTIL WE MEET AGAIN ..

The next meeting will be arranged to take place towards project month 18, June 2024. Looking forward to the exciting results targeted within the upcoming 6 months and other project updates to be shared.

**TU
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BROMEDIR
CONSORTIUM
MEETING

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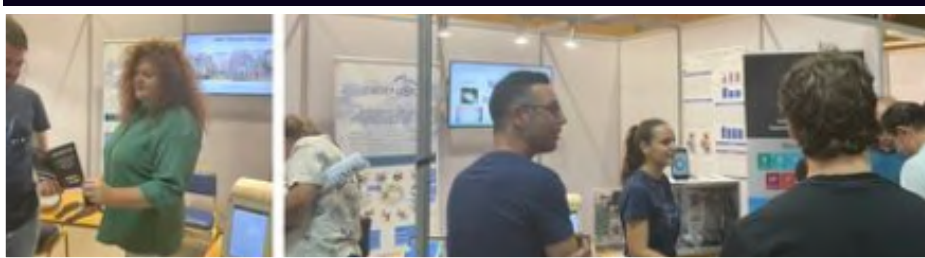
DISSEMINATION & COMMUNICATION

OTHER ACTIVITIES DURING THE LAST SIX MONTHS

»»» EUROPEAN RESEARCHER NIGHT 2023



BROMEDIR was communicated at the European Researchers' Night 2023, Nicosia, Cyprus, where scientists from various fields had an opportunity to hear project updates, current developments and learn more about the project use cases.



»»» WEB SUMMIT 2023



BROMEDIR was also featured at the Web Summit 2023, Lisbon, Portugal at an event attended by tech industry, innovative thinkers, investors and other industry experts from around the world.

At this year's event, relevant use case stakeholders were approached to further discuss the project developments.



BROMEDIR CONTACT DETAILS

ONLINE PRESENCE OF THE PROJECT

»»» PROJECT NEWSLETTER

The newsletter aims for a quick overview of project updates, news, work performed and events attended, every 6 months throughout the project duration. Anyone interested in BROMEDIR project, may conveniently subscribe via the project website to receive an automated notification once a newsletter is released.

BROMEDIR

LET'S STAY CONNECTED

»»» CONTACT DETAILS

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