MobiliTraIN

Ion Mobility Mass Spectrometry Training Network

Project no. 101119562

Deliverable 2.2
MobiliTraIN Introduction Days

Version 1.0

WP 2 – Training – Scientific and career development training

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Executive Summary

This document provides an overview of the first in-person event of MobiliTraIN (Introduction Days) involving the recruited Doctoral Candidates, including the training modules, management activities and social program.

Background

The deliverable D2.2 is part of work package 2 (WP2), which centres around scientific and career development training. It includes the scope, agenda and outcomes of the first network-wide training received, management activities, social events, and the steps taken to ensure training material was preserved and made available to all MobiliTraIN members for the duration of the project.

Objectives

The primary objectives of the Introduction Days were:

- Introduce all DCs, their background and planned activities for their DC projects
- Open new personal communication channels between different PIs and DCs
- Deliver training from PIs and external speakers to bring all DCs to the same level in terms of the basics of IM-HRMS research and the main experimental techniques that will be used throughout the project
- Provide a first introduction to the private sector of IM-HRMS, providing DCs from the start of their projects with the tools and knowledge they need to organise and smoothly manage their projects and with a clear understanding of the business environment that has developed and grown around IM-HRMS and mass spectrometry

Methodology and Outcomes

The event took place over three days and was hosted by Prof. Valérie Gabelica at the University of Geneva. The scientific training module was planned with contributions from MobiliTraIN members and with additional contributions from external speakers. In addition to “speed dating” activities for all DCs to meet all PIs and co-supervisors present, the industry inside-out module and social activities were highlights of the event.

Next steps

The next in-person training event will be held at UAntwerpen in the second half of 2025. Additional online events will also be taking place in 2025, including webinars.

Revision history

Author(s)	Description	Date
Tim Causon (BOKU)	Deliverable draft	29 January 2025
Jacqueline Strehler, Alexandra Furio (accelCH)	Revision 1	03 March 2025
Tim Causon (BOKU)	Final Version	03 March 2025

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Abbreviations

Abbreviations	Details
BOKU	Universität für Bodenkultur Wien
Bruker	Bruker Daltonics GmbH & Co. KG
CNRS	Centre National de la Recherche Scientifique
FUB	Freie Universität Berlin
INSERM	Institut National de la Santé et de la Recherche Médicale
ONIRIS	Ecole Nationale Vétérinaire, Agroalimentaire et de l'Alimentation Nantes Atlantique
UKJ	Universitäts Klinikum Jena
UAntwerpen	Universiteit Antwerpen
UU	Uppsala University
accelCH	accelopment Schweiz AG
AFIN-TS	Forschungsintitut für Non-Target Screening GmBH (AFIN-TS)
Agilent	Agilent Technologies, Inc.
BAM	Bundesanstalt für Materialforschung- und prüfung
EnviBee	EnviBee GmbH
GTImpact	Gilles Toussain
Johnson & Johnson	Janssen Pharmaceutical NV
QA	Quality Assistance S.A.
Waters	Micromass UK Ltd.
UNIMAN	The University of Manchester
UNGE	Université de Genève
UMontpellier	Université de Montpellier
UNISTRA	Université de Strasbourg

1 Introduction

The MobiliTraIN network-wide training programme is designed to complement and enhance the local training through a series of regular training events held every six months (in-person or online), in addition to participation at conferences, developing public webinars and organising a final network event open to external participants. Training modules at these events will be delivered through diverse learning methods, such as interactive lectures, quizzes, case studies, panel discussions, practical work, etc. Renowned guest speakers and the invitation of external participants to some modules will enhance the networking opportunities of the DCs, who will also support in organising the events.

The first of our series is the in-person “Introduction Days” held in January 2025 at the University of Geneva. The Introduction Days intend to provide Doctoral Candidates (DCs) a basic understanding of the MobiliTraIN project and to bring the DCs to the same level in terms of the basics of ion mobility research and main experimental techniques that will be used throughout the project.

2 Organisation

The meeting was hosted by Prof. Valérie Gabelica at the University of Geneva. After consultation with the MobiliTraIN management, a program of lectures including additional guest speakers was prepared, and the event opened for registration of DC participants. As the first in-person event of MobiliTraIN, additional co-supervisors of some DCs also joined to strengthen the scientific networking. All training lectures were recorded on-site.

3 Event report

The Introduction Days were attended by 33 participants from the beneficiaries and associated partners of the MobiliTraIN consortium. The participants included 11 recruited DCs, three of whom hadn’t officially started their positions yet. The program provided a diverse program, including various networking opportunities and training in scientific skills.

3.1 Program agenda

Table 1: Program for Monday, 27th January 2025

Time	Activity
13:00 - 13:30	Registration - Welcome and get-together
13:30 - 13:50	Welcome address - Tim Causon (BOKU, AT)
13:50 - 15:00	Introduction to labs and research topics - Ice breaker (“speed dating”)
15:00 - 15:30	Coffee break
15:30 - 17:30	Introduction to labs and research topics by DCs including presentation of MobiliTraIN research themes
18:30 - 20:00	Walking tour – “Measuring time: the history of watchmaking” in Geneva
20:00 - 22:00	Dinner with all DCs, PIs and co-supervisors

Table 2: Program for Tuesday, 28th January 2025

Time	Activity
08:30 - 09:00	Introduction on mass spectrometry and ion mobility spectrometry, and what is the difference - Sarah Cianferani (CNRS and UNISTRA, FR)
09:00 - 09:30	Introduction on ionisation techniques for IM-MS - Perdita Barran (UNIMAN, UK)
09:30 - 10:00	Introduction on vacuum techniques, control and measurement of pressures - Jakub Ujma (Waters, UK)
10:00 - 10:30	Coffee break
10:30 - 11:30	Overview of mass analysers - Florian Meier (UKJ, DE) & Stephan Hann (BOKU, Vienna, AT)
11:30 - 12:30	Introduction on collisions (activation and quencing, collisional activation in MS/MS, friction in ion mobility, pressure dependence) - Eduardo Carrascosa (Bruker, DE)
12:30 - 13:00	MobiliTraIN Management Board Meeting
13:00 - 14:00	Lunch
15:00 - 17:00	Guided tour - Visit of the CERN exhibitions
19:30 - 22:00	Dinner with all DCs, PIs and co-supervisors

Table 3: Program for Wednesday 29th January 2025

Time	Activity
08:30 - 09:00	Overview of ion mobility analysers Kevin Pagel (FUB, DE)
09:00 - 09:30	Drift tube ion mobility - Hannah Florance (Agilent, UK)
09:30 - 10:00	The meaning of mobility-derived collision cross sections - Valérie Gabelica (UNIGE, CH)
10:00 - 10:30	Coffee break
10:30 - 11:10	Traveling wave ion mobility analysers: principles and calibration - Jakub Ujma (Waters, UK)
11:10 - 11:30	Coupling chemical ionisation with high-resolution ion mobility TOFMS - Sebastian Gerber (Tofwerk, CH)
11:30 - 12:00	Trapped ion mobility analysers: principles and calibration - Oliver Raether (Bruker, DE)
12:00 - 12:30	FAIMS and differential mobility spectrometry - Gérard Hopfgartner (UNIGE, CH)
12:30 - 13:30	Lunch
13:30 - 15:30	Industry inside-out - comparison of different ion mobility technologies: DC group flipped-classroom activity and quiz.
15:30 - 16:00	Coffee break
16:00 - 17:15	Industry inside-out - panel discussion with MobiliTraIN DCs.
17:15 - 17:30	Conclusion and farewell

3.2 Outcomes

The Introduction Days achieved their aim to provide a common ground for the MobiliTraIN consortium, specifically for DCs. As not all DCs were recruited at the time the Introduction Days took place, all scientific lectures on IM-HRMS were recorded. The recordings and training materials were uploaded to accelCLOUD, the project's document-sharing system, and will be accessible to all DCs, particularly those who will join later this year.

3.2.1 Scientific lectures

Lectures provided by representatives from MobiliTraIN Beneficiaries, Recruiting Associated Partners, Associated Partners and two guest lecturers provided DCs with an in-depth introduction to all aspects of the experimental methods of key importance in MobiliTraIN. This provided all DCs with a common knowledge base in the early months of their individual projects. DCs received technical overviews of key IM-HRMS instrumentation components, fundamental physical chemistry, and relevant standards. Engagement with the lecturers was encouraged and continued into the social program, which involved DCs, PIs and co-supervisors.

3.2.2 Flipped classroom activity

MobiliTraIN DCs were assigned into four equal teams and provided with additional material on four key IM-HRMS technologies (DTIM, TWIMS, SLIM, TIMS). They were then tasked with answering key questions on their assigned technology using the materials from the lectures and via interaction with PIs, co-PIs and industry representatives present. After gathering all information within "technology-specific" groups, the individuals returned to their teams and taught each other about their technology. Finally, an interactive quiz (Mentimeter) was used to test the DCs' knowledge and ability to transfer this to their teammates, with the winning team declared based on cumulative points.

3.2.3 Industry inside-out panel discussion

Three representatives from the IM-HRMS industry (Emma Marsden-Waters, Hannah Florance, and Ahmed Ben Faleh) introduced and presented themselves to the MobiliTraIN DCs, covering their academic background, career trajectory and current roles in the IM-HRMS industry. The DCs asked questions about their experiences in academia, obtaining a PhD, transitioning to industry and their perspectives on the importance of obtaining a broad skillset for their own careers.

3.2.4 Management and networking

The Introduction Days were the first opportunity for the MobilitTraIN DC to meet each other in person. They received an introduction to the whole project, provided by Tim Causon, the MobiliTraIN coordinator. This included informing the DCs of their rights and obligations as Marie Sklodowska-Curie fellows. The icebreaker activity allowed all DCs to speak with all principal investigators (PIs) of the project personally. Furthermore, the DCs were informed of their active involvement in the management of the project and were tasked with electing their first representatives for the Supervisory and Management Board, respectively. The elected members for the Management Board were also able to participate in their first board meeting at the Introduction Days.

3.3 Outreach

Outreach for the MobiliTraIN Introductory Days included a LinkedIn post announcing the event, which was shared by participants through their networks. A news piece on the project website features a more detailed overview of the training days, including pictures. These efforts support the visibility of the MobiliTraIN projects and ensure widespread communication about the project's research and events.

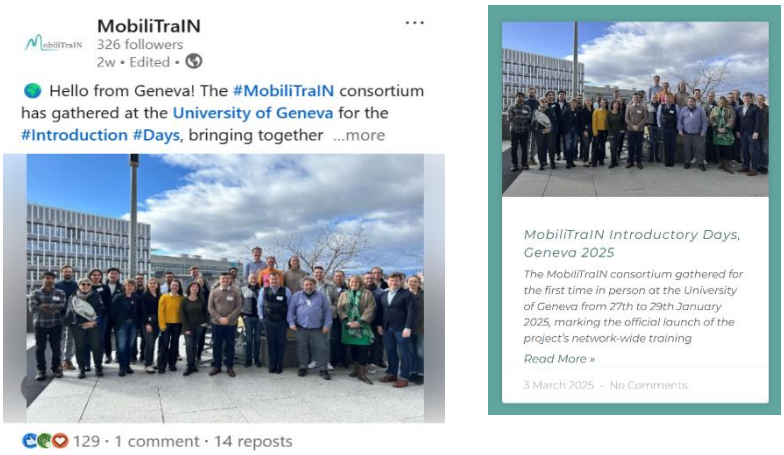

Figure 1: LinkedIn and website posts about the Introduction Days.