
Multidimensional Chromatography Workshop

**Short Course
Liège, Belgium
February 2, 2025**

Agenda

8:30 AM – 8:45 AM	Welcome and Activity
8:45 AM – 9:45 AM	Part I – History, Terminology, Fundamental Concepts
9:45 AM – 10:00 AM	Coffee Break
10:00 AM – 11:15 AM	Part II – Introduction to Multidimensional GC
11:15 AM – 12:30 PM	Part III – Introduction to Multidimensional LC
12:30 PM – 1:15 PM	Lunch
1:15 PM – 2:00 PM	Travel to University of Liège
2:00 PM – 3:00 PM	Part IV – Laboratory Instrument Familiarization – Rotations 1 & 2
3:00 PM – 3:15 PM	Coffee Break
3:15 PM – 4:15 PM	Part IV – Laboratory Instrument Familiarization – Rotations 3& 4
4:15 PM – 5:00 PM	Final Wrap-Up and Discussion
5:00 PM	Travel Back to City Center (Walking distance to Brewery meet-and-greet and Pentahotel)

A Beginner's Guide to Multidimensional Chromatography

Instructors:

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Dwight Stoll (Gustavus Adolphus College)

Petr Vozka (California State University Los Angeles)



Multidimensional Chromatography Workshop

Course Description

So...you want to do multidimensional chromatography? If you are getting started in the field using either liquid or gas chromatography, you're in the right place. This course will cover a brief history and introduction to both multidimensional gas chromatography and multidimensional liquid chromatography. Discussion will also include basic system components and data handling strategies to apply after acquiring your data. A hands-on portion of the course will also include familiarization with common system components and consumables for both GC and LC, as well as the opportunity to use a commercial GC×GC instrument.

Target Participants

This course is intended to be an initial touchpoint for those who are looking to explore multidimensional chromatography as a new option/capability, or who might be using it for the first time. The course is intended for new users to obtain a background on the techniques as a primer to the workshop. Advanced topics will not be discussed.

Course Logistics

Morning Session (8:30 AM – 12:30 PM): Pentahotel Liège, Bd de la Sauvenière 100, 4000 Liège

Afternoon Session (2:00 PM – 5:00 PM): University of Liège Sart Tilman Campus, Quartier Agora, Allée du Six Août 11, 4000 Liège

Lunch and coffee will be provided. Transportation to/from the university for the afternoon session will be organized for the group.

Multidimensional Chromatography Workshop

Part I – History, Terminology, Fundamental Concepts

- Brief history of the development of multidimensional separations
- Terminology
- Fundamental Concepts

Part II – Introduction to Multidimensional Gas Chromatography

- Method basics (column selection, method parameters, carrier gas choices, detector considerations)
- Modulator selection (thermal, flow, others)
- Method development made simple
- Data preprocessing and initial handling

Part III – Introduction to Multidimensional Liquid Chromatography

- Modes of multidimensional separation commonly used with LC (heartcut, multiple heartcut/selective comprehensive, fully comprehensive)
- Interfaces used for multidimensional LC
- Common use cases of multidimensional LC (industry and academic research examples)
- Introduction to method development strategies

Part IV – Laboratory Session

Participants will be put in small groups and rotate to different stations to familiarize with a variety of GC and LC components used for multidimensional systems including:

- Rotation 1: 2D LC – Interfaces, valves, columns, acquisition software
- Rotation 2: GC×GC – Tuning, sequence setup, acquisition
- Rotation 3: GC×GC – Hardware and consumables
- Rotation 4: GC×GC – Data processing examples