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Institute of Chemical Sciences and Engineering - ISIC
Swiss Cat+

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Offer for master thesis project within the SB/ISIC/SwissCAT+ research infrastructure

Project 7 : Development of a chained LC-Prep -> multispectrophotometry setup

In the context of high-throuthput molecular discovery, analytical methods play an essential role. They inform the database about the outcome of the reactions and, more generally, about molecular properties. To extract a maximum of information, we tend to combine methods to generate multidimensional data matrices. An interesting coupling is the one between the preparative liquid chromatograph (LC Prep) and the different spectrophotometers (UV-VIS and FT-IR) and the high-resolution NMR spectrometer. These instruments require specific solvents (deuterated), references and concentration ranges. To chain LC prep with these tools, it is therefore necessary to pass through an automated solvent exchange station (SPE) and automated dilution stations (Agilent Bravo liquid handler). The aim of this project is to develop the complete sample preparation method as well as the different acquisition methods required to achieve a predefined signal-to-noise ratio (SNR).

Expected deliverables:

1. To perform a complete bibliography
2. To develop the complete sample preparation methods
3. To develop the spectrophotometers (UV and FT-IR) acquisition methods
4. To perform qualification tests on known mixtures

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