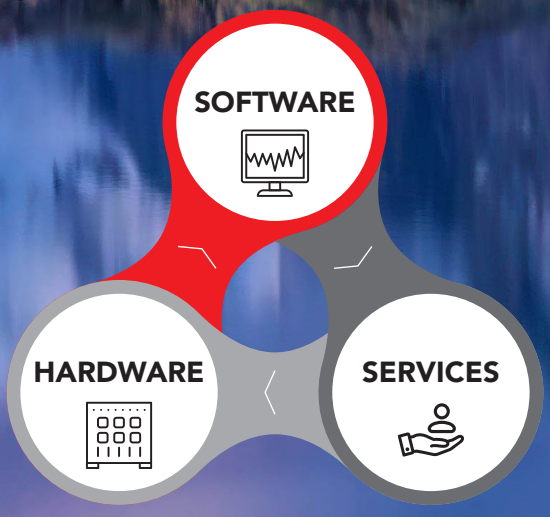
Spectroswiss

Mass spectrometry data acquisition, processing, and analysis

EMPOWERING PRECISION UNLEASHING POTENTIAL



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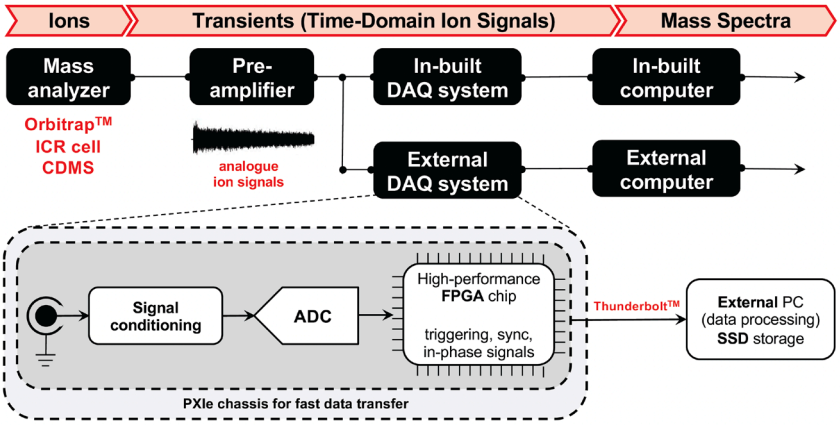
Hardware tools to access the unreduced data in FTMS

Most Fourier transform mass spectrometers (FTMS) provide only processed and noise reduced data (mass spectra). Having access to the true raw data (FTMS time-domain transients) permits the most informative and efficient data processing possible. Our **FTMS Boosters**, compatible with all FTMS instruments on the market, enable time-domain transient acquisition and access to high quality unreduced data. Combine them with our **Peak-by-Peak** software for advanced data processing and data analysis to take the full advantage of your FTMS platforms!

FTMS BOOSTER SYSTEMS ARCHITECTURE



DAQ: data acquisition (system); ADC: analog-to-digital converter; FPGA: field programmable gate array

ORBITRAP™ TRANSIENT ACQUISITION & PROCESSING

FTMS Booster X2T

- Easy add-on to any Orbitrap™
- Works in parallel with the in-built data acquisition electronics
- **Thunderbolt™** technology for remote control and rapid data transfer
- Unlocks **absorption mode FT (aFT)** mass spectra
- Full transient detection for enhanced sensitivity, (ultra-high) resolution, and duty cycle
- Patented technology to maximize sensitivity through simultaneous acquisition of low/high gain transients via proprietary PXI amplifier*
- Detection of ion signals across the full *m/z* range
- **User-defined first *m/z* value** to minimize data sizes and maximize processing speeds
- Acquires transients of any length, e.g.,> 25 s
- Takes care of the heavy data sets
- [NEW] Calibrated signal amplitudes to provide complementary data (e.g. ion charges for CDMS applications, ion transmission tuning)
- [NEW] Data visualization modes: single scan and transient averaging (micro-scans average, moving average, cumulative average)
- [NEW] Acquisition of an arbitrary long signal (continuous data stream) for R&D set-ups
- [NEW] Auxiliary real-time high-dynamic range digital filters for R&D set-ups
- Option: a stand-alone powerful **data analysis workstation**

PXI Amplifier

*Patent US 11,222,774 from 2022

FT-ICR MS TRANSIENT ACQUISITION & PROCESSING

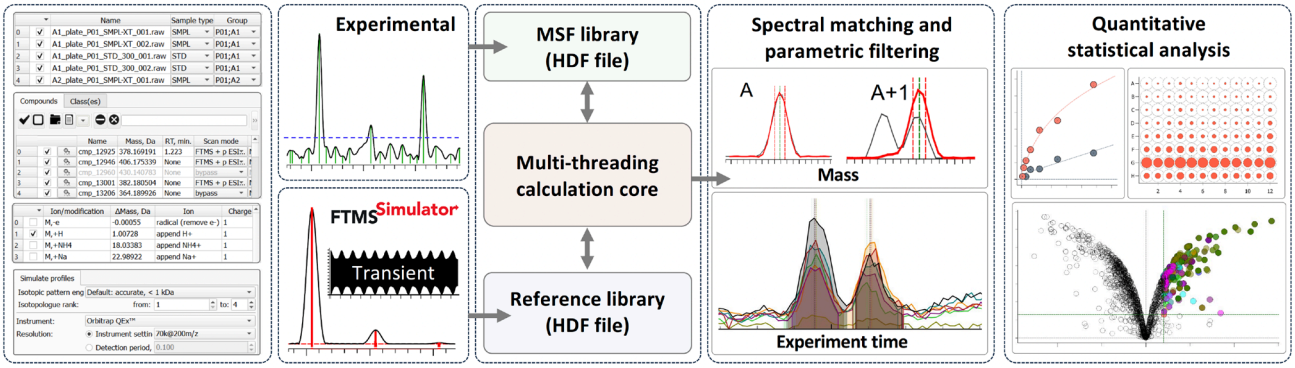
FTMS Booster X3T

- Easy add-on to any FT-ICR MS, as well as any Orbitrap™ FTMS
- **Thunderbolt™** technology for remote control and rapid data transfer
- Acquisition of both excite and detect waveforms in FT-ICR MS
- All capabilities of the FTMS Booster X2T
- Two reserved slots for hardware extension modules
- Option: a stand-alone, powerful **data analysis workstation**

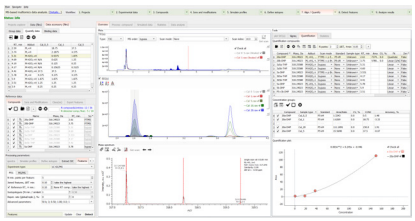
Software tools for data processing and analysis

Spectroswiss software solutions provide a step-change in mass spectrometry data quality and processing sophistication. Our computationally-efficient tools are capable of processing any size datasets, whether these are **unreduced data** (time-domain transients and absorption mode FT, or aFT, mass spectra) or **reduced data** (e.g., full and reduced profile enhanced FT, or eFT; and magnitude mode FT, or mFT, mass spectra). These tools empower application-specific workflows, offering step-by-step data processing and analysis routines.

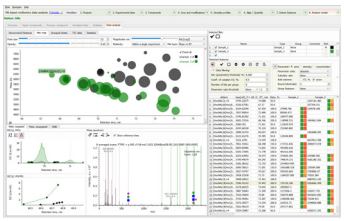
PEAK-BY-PEAK FRAMEWORK CONCEPT



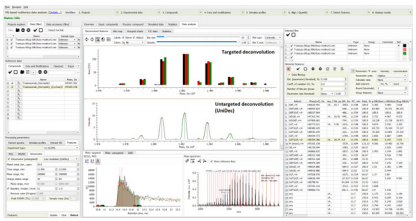
PEAK-BY-PEAK APPLICATION-SPECIFIC WORKFLOWS



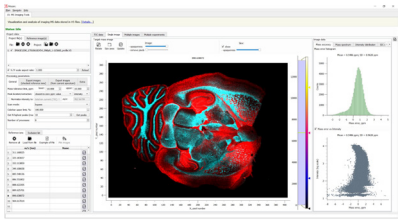
Metabolomics, lipidomics, protein-ligand interactions



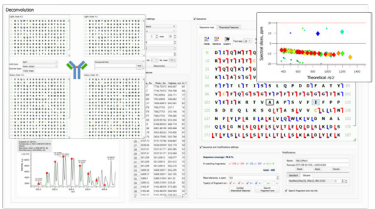
Quantitative bottom-up proteomics, glycoproteomics, PTMs analysis



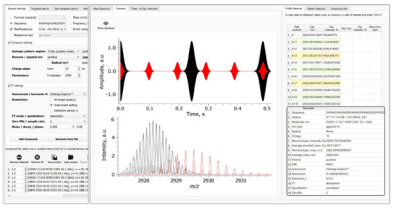
Proteins & proteoforms: intact mass & quantitation



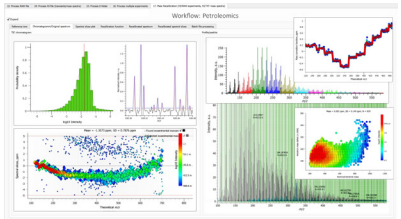
MS Imaging: MALDI & DESI



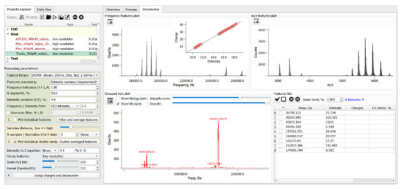
Proteoforms sequencing: top-down & middle-down analysis



Accurate simulations of FTMS transients, isotopic envelopes, & mass spectra



Complex mixture analysis (direct infusion & LC-MS)



Charge detection mass spectrometry (CDMS)

Custom workflows to meet your specific requirements & needs!

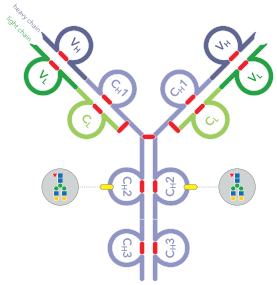
KEY FEATURES

- Step-by-step workflows for advanced processing and analysis of mass spectrometry data
- A **multi-vendor** toolbox, featuring a direct data import of major vendor and open-source file types
- Support of reduced and unreduced data, including full profile mass spectra and time-domain transients
- Targeted deconvolution and untargeted low-resolution (UniDec) and high-resolution (Hardklor) deconvolution
- Targeted experimental data search and annotation with simulated centroid and profile isotopic envelopes
- Parallel computing on multiple CPU-cores and GPUs for fast data processing
- Powerful and memory-efficient handling of any size datasets

Services to support your research & training

We offer a range of CRO services, consulting, and training courses. Utilizing our in-depth expertise and industry-leading know-how, and equipped with our proprietary advanced software and hardware tools, we look forward to supporting you in your routine and most challenging FTMS developments and applications.

CRO SERVICES FOR PROTEIN (ANTIBODIES) ANALYSIS

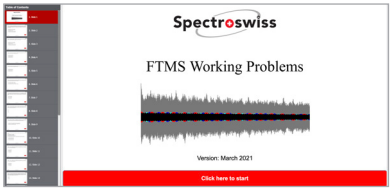


- Advanced and proprietary mass spectrometry solutions for mAb analysis, including complex multi-specific mAbs and ADCs/AOCs
- Superior quality data due to our proprietary methods and techniques for Orbitrap FTMS, powered by our custom biopharma software tools
- Integration of intact mass, middle-up, middle-down, top-down, and bottom-up mass spectrometry approaches
- Personalized follow-up and dedicated customer support

FTMS INSTRUMENT & WORKFLOW DIAGNOSTICS

- Identify the strengths and limitations of your FTMS platforms
- Understand the millisecond-timescale logistics of your experiments
- Explore ultra-high resolution capabilities
- Improve and expand your workflows
- Advance your most challenging applications

FTMS EDUCATION & TRAINING



- "FTMS Data Processing" and "FTMS Fundamentals" short courses
- Best practices and knowledge in FTMS, with an emphasis on Orbitrap™
- On-demand customer-specific on-line and on-site training programs
- Lectures, practical workshops, and hands-on problem solving
- For FTMS users in academic and industrial analytical laboratories
- Distributed over several days to match your schedule

COMPANY PROFILE

Spectroswiss is a 2014 spin-out from a Biomolecular Mass Spectrometry Laboratory at Ecole Polytechnique Fédérale de Lausanne (EPFL) in Switzerland. We provide software solutions for comprehensive data processing and data analysis in mass spectrometry, as well as advanced hardware for FTMS data acquisition. Capitalizing on our expertise in FTMS and proprietary advanced hardware and software solutions, we offer expert-level FTMS-related consulting, training, and CRO services. The company's headquarters are located in Lausanne, Switzerland. Our US office is in Cambridge, MA and our EU representative is Spectrotech SAS in Lyon, France. Welcome!

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