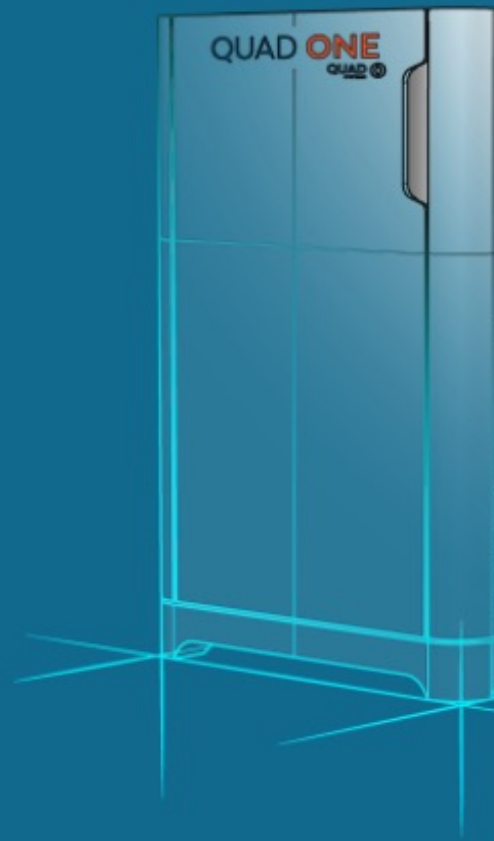
QUAD
SYSTEMS

A fresh approach in NMR spectrometry
for demanding applications

Company Introduction

QUAD Systems 2024



Background

Who are we ?

- QUAD is a Swiss based private company bringing decades of collective experience in developing innovative NMR products.

What are our objectives ?

- With the NMR market currently dominated by one major player, QUAD will provide alternative options for all NMR users.
- Our goal is to rejuvenate innovation in NMR development for the whole community.

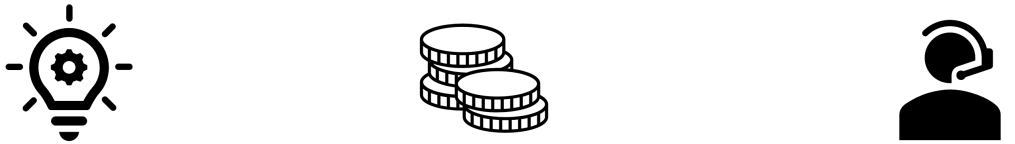
What do we offer ?

Full systems

- Magnets & Shim systems
- Consoles & Automations (sample changer, cooling units)
- Probes

Replacements

- Consoles + probes ***ON YOUR*** magnets + shim systems
- Consoles + probes + shim systems (+ automation) ***ON YOUR*** magnet

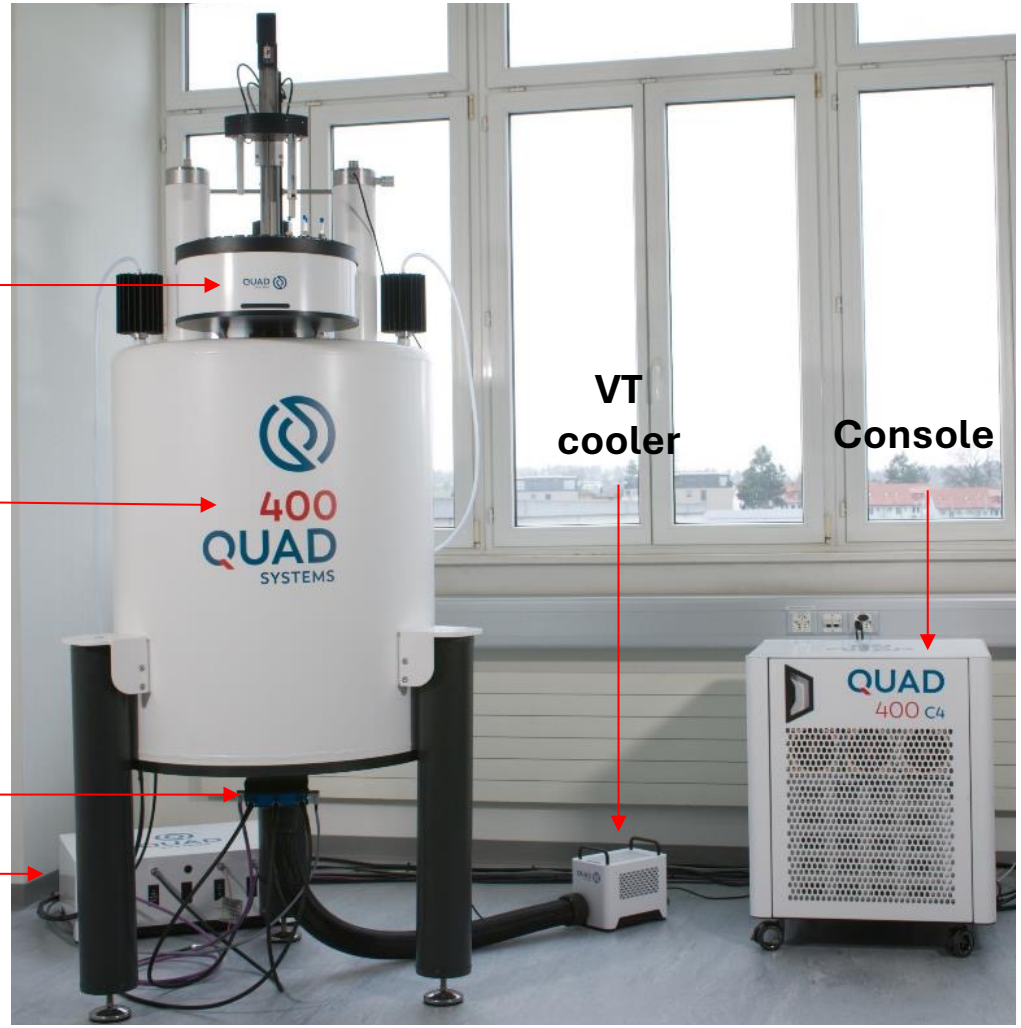


Innovative products and performance

Competitive and economic price structure

Applicative and service team available within different countries (EU, US, CN)

QUAD NMR Full system



Collaborations with more than 30 NMR groups mainly in EU and North America.

QUAD NMR Probes

Routine probes:

- 2CH probes for 300…600 MHz:
  - •BBO/BBFO & BBI configuration
  - •Z gradient: 6 Gauss/A*cm

R&D specific probes examples:

- Ultra-high spin lock probes > 250 kHz on ^{1}H and ^{19}F
- 3CH probe for Rh applications: H / P / ^{103}Rh-D 5 mm Z gradient
- 3CH applications X / F / H 5 mm Z gradient
- 3CH application X,F / P / H 5 mm Z gradient
- 2CH 20 mm probes for e.g. rat heart applications [^{13}C, ^{31}P, ^{23}Na] / ^{1}H 5 mm Z gradient

Piezo Actuators for Tuning & matching

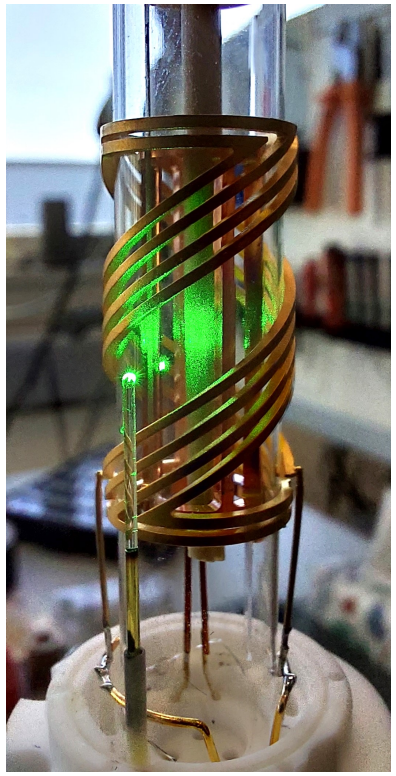
High precision transmit / receive coil

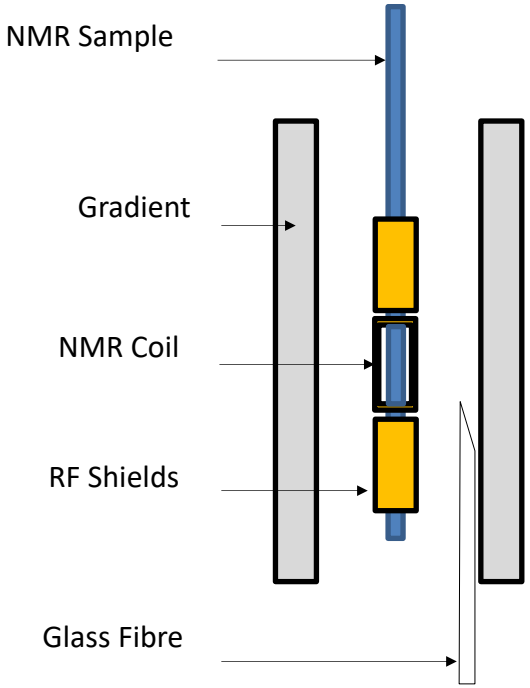
We are open to build your R&D probes !

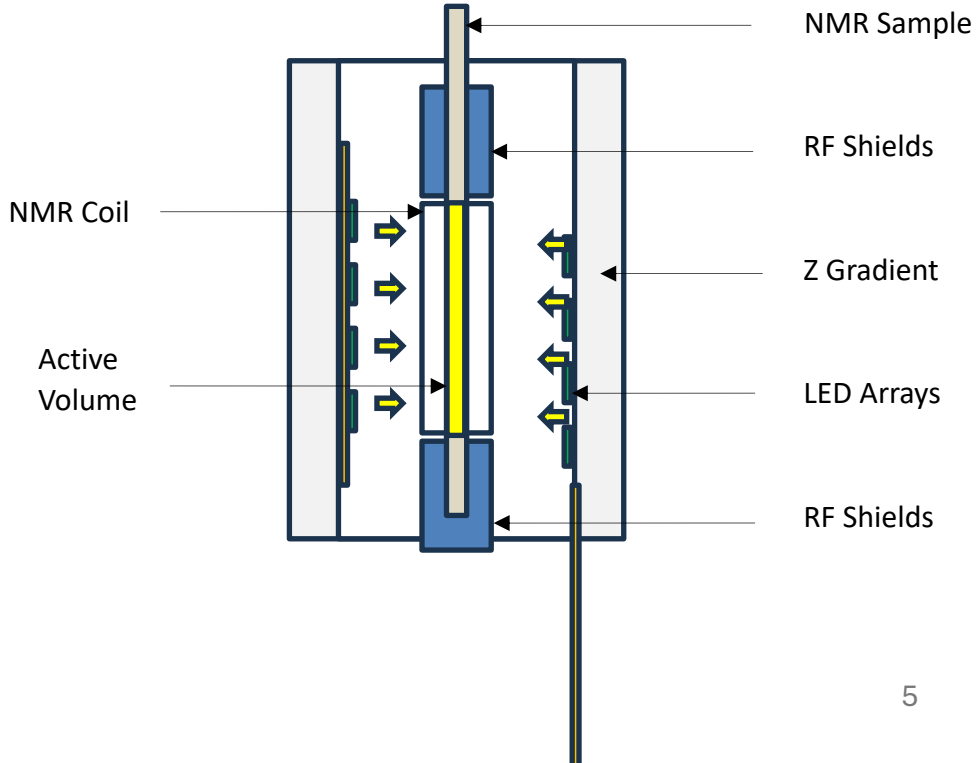
QUAD NMR Probes

Illuminated probes example:

- 2CH probes with light irradiation: glass fibre or LED arrays integrated into probe for UV, vis light irradiation







QUAD NMR Console

- Dedicated to liquid state NMR
- 2CH or 3CH, 300….600 MHz
- ^{2}H or ^{19}F lock
- Power Amplifier 1H = 100 W / X = 300 W / Lock = 10 W
- Gradient amplifier 10 A
- Separated preamp, near to magnet for highest signal/noise
- 64CH shim power supply up to 22 bits resolution

- Shim coil with max 47 shims

QUAD NMR Magnet

- 400 and 600 MHz magnets with 54 mm bore
- Highest field homogeneity and low drift rate < 4 Hz/h
- Actively shielded for ease of siting and operation
- Anti-vibration legs
- Optimized for single story labs (< 3 m ceiling height)
- High thermal efficiency cryostat for lowest possible Helium consumption: roughly 1 year hold time (LHe)

QUAD Cooling units

QUAD Peltier Cooler

- Temperature range: +5 °C … +25 °C
- Energy efficient Cooling unit
- No air compressor, no vibrations

QUAD Heat Exchanger

- Temperature range: below -100 °C

Air-Jet Crystal cooler (SP Industries)

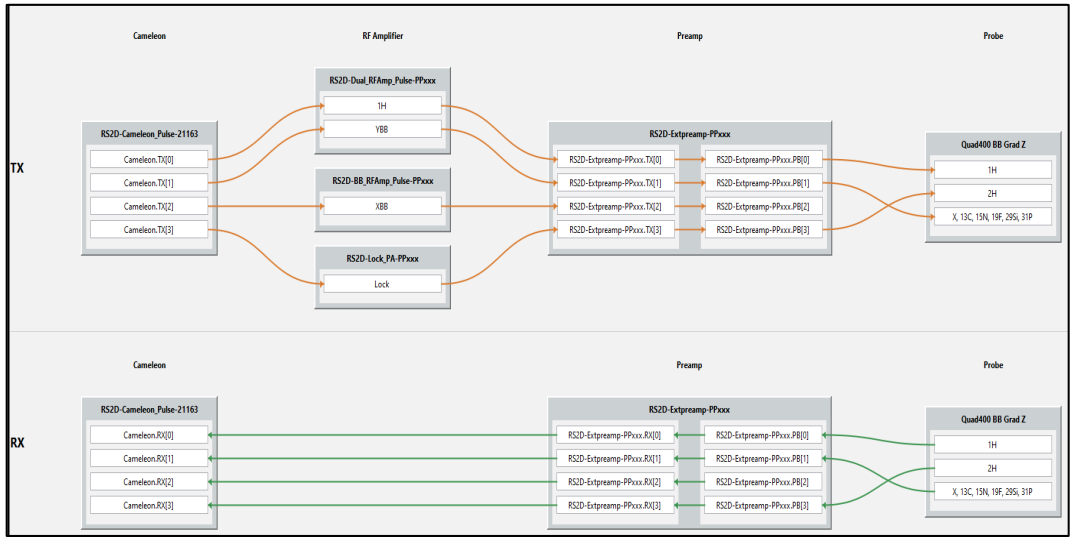
- Temperature range: -90 °C … +100 °C

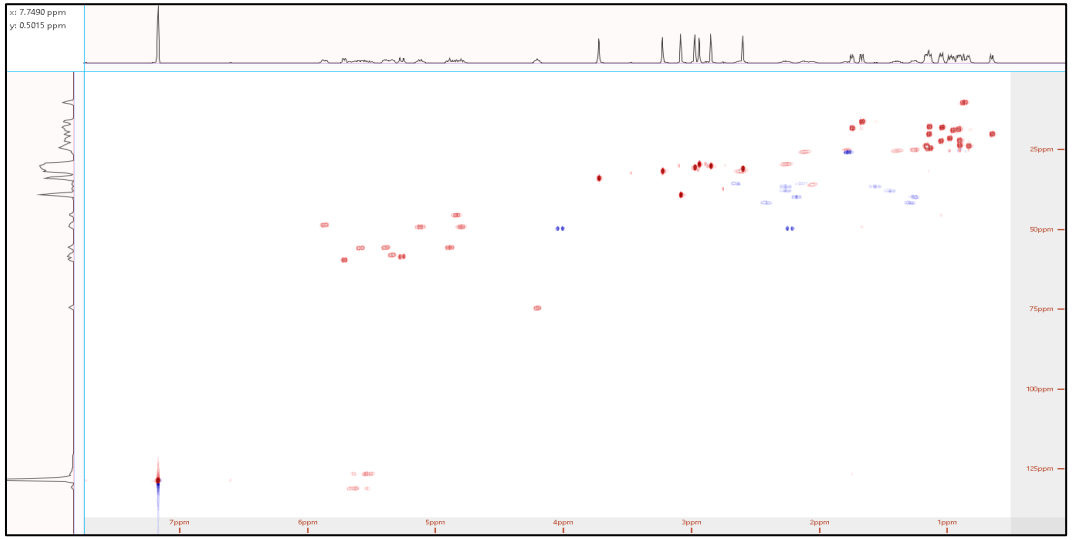
QUAD Software suite

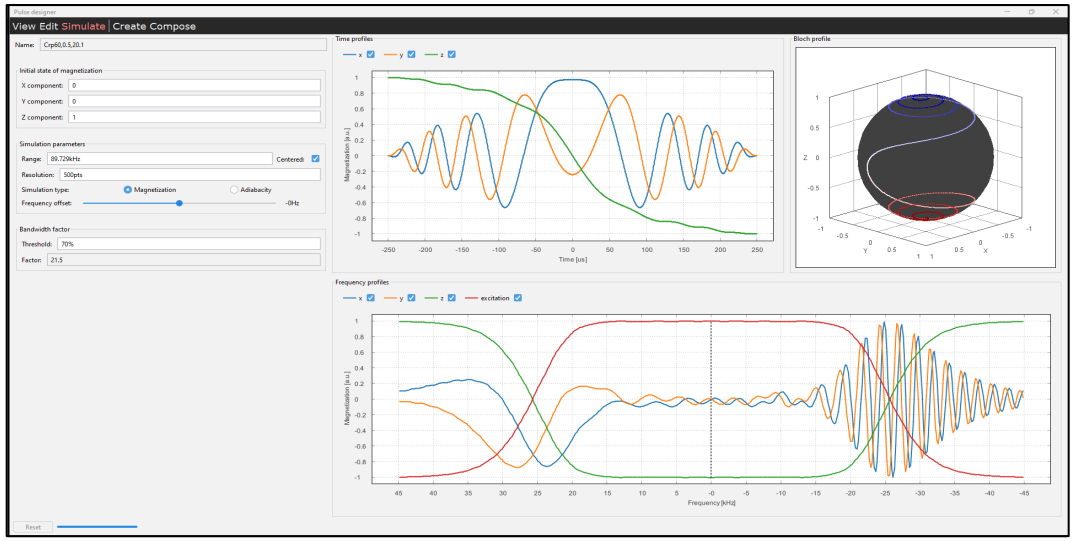
- Intuitive Java coded software and subdivided into panels (no command lines)
- Graphical instrument setting (wiring, probes management, shim…)
- Role and permission management to regulate access to functionalities
- Preparation, acquisition, process and export workflow
- Tool for sequence development & shape designing
- Integrated pulse sequences library
- Pulse solver to compute the power of the pulses

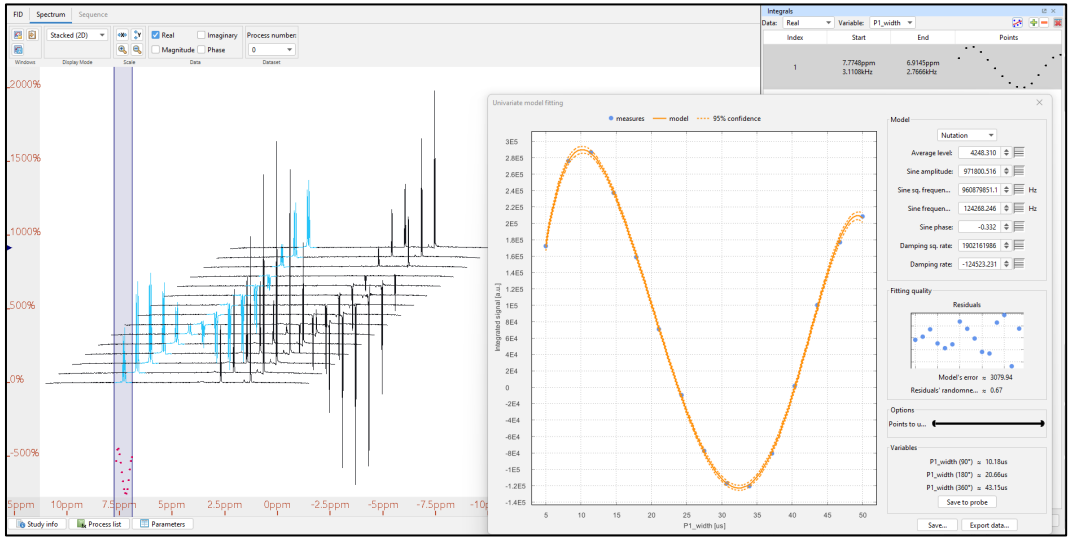
- Java coded software
- Automation management
- User interface is easy to pick up
- Priority concept, Day/Night management

QUAD Software suite: SPINit

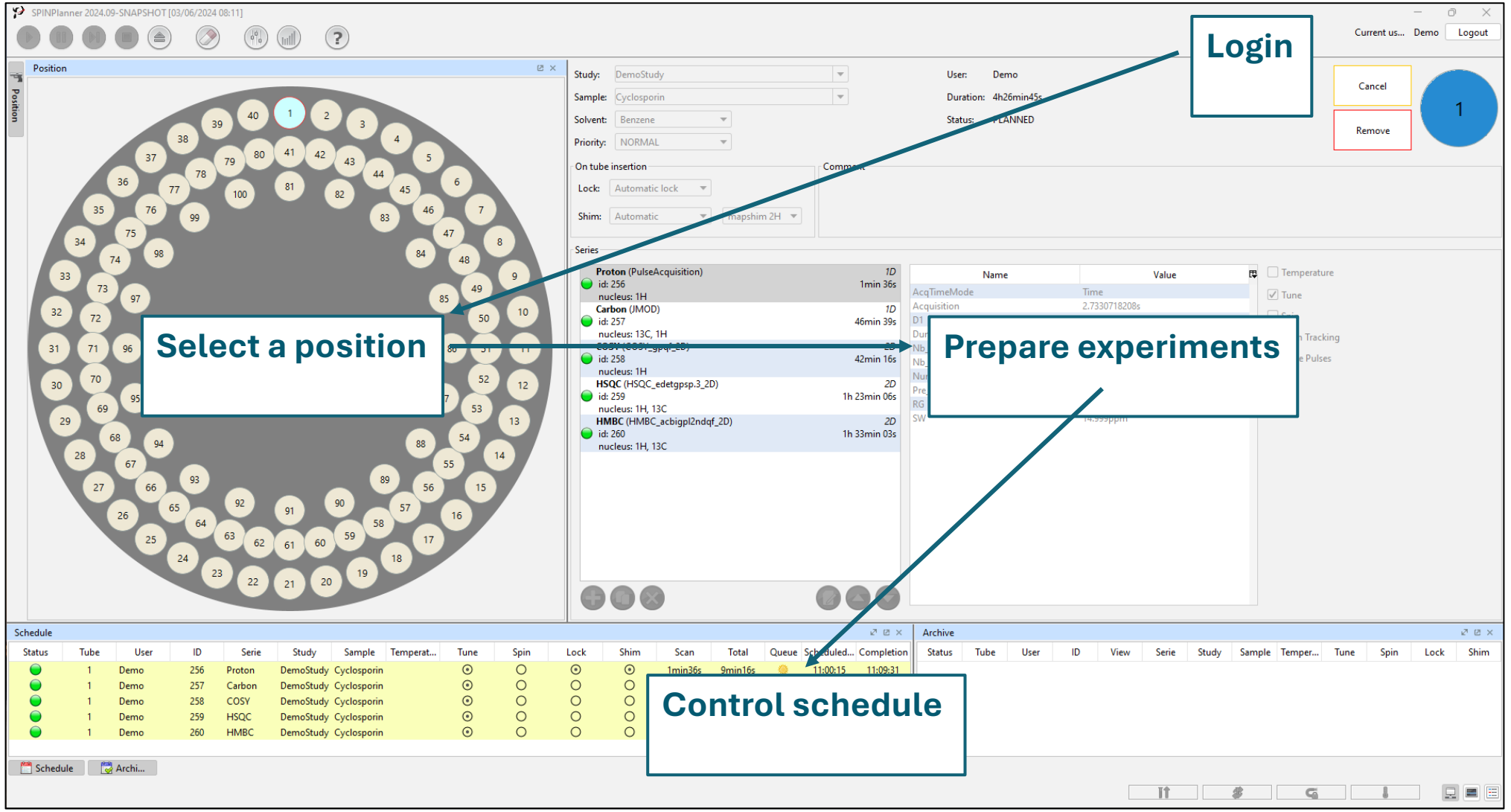








QUAD Software suite: SPINPlanner



QUAD Library

- 650+ pulse sequences
- 480+ applications
  - Pulse sequence associated with predefined acquisition parameters and process list
- Protocols
  - Predefined list of applications
- Shapes pulses
  - 170 Tx shapes
  - 9 gradient shapes
- Predefined process list (1D, 2D, diffusion, JRES…)

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Thank you for your attention !