MODULÁRNÍ PLATFORMY GC a GC-MS

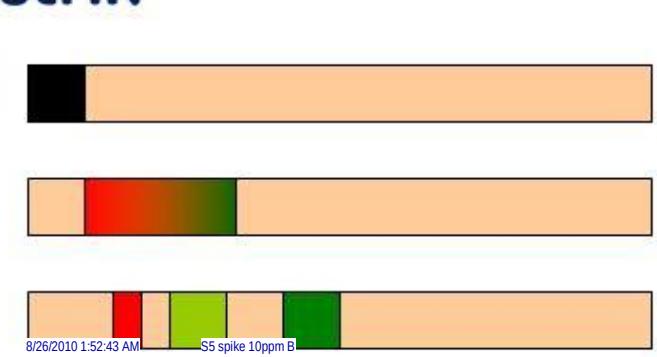
Lukáš Plaček

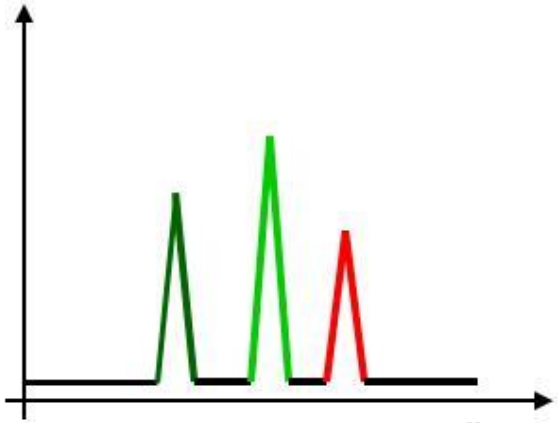
pragolab

Thermo SCIENTIFIC

ANALYTICKÁ SEPARACE

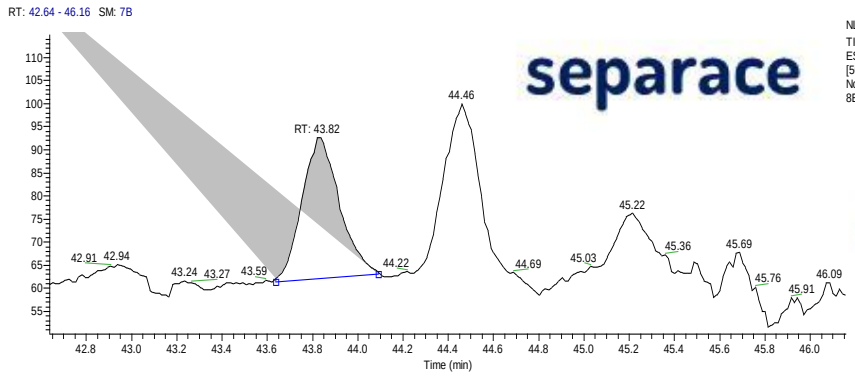
nástřik

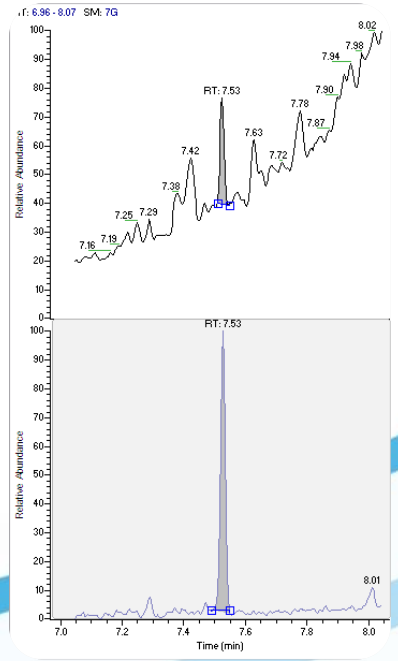


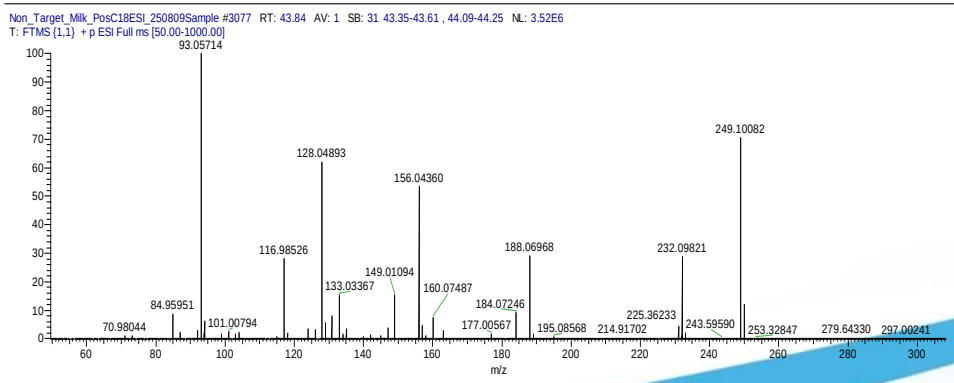


separace

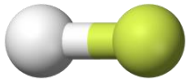
detekce

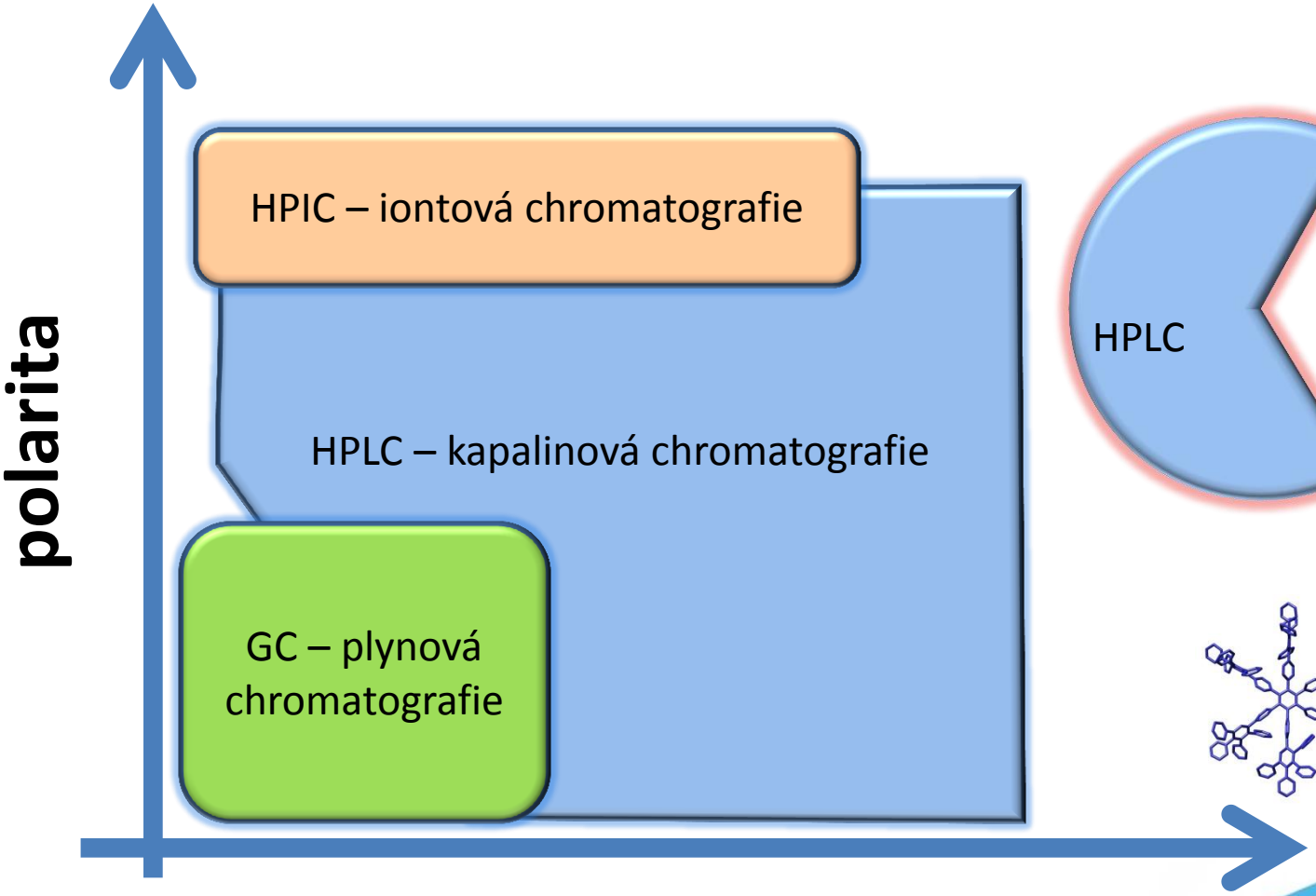






ANALYTICKÁ SEPARACE





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Iontová Chromatografie

ICS-4000

ICS-5000

- Absolutní jednička na trhu
- Kapilární i standardní systémy
- **Chromeleon**

Kapalinová Chromatografie

Ultimate 3000

- Nejširší aplikační záběr
- Ultra HPLC nejvyšší třídy i standardní systémy
- **Chromeleon**

Plynová Chromatografie

- Flexibilita – výměnné moduly
- Špičková GC-MS technika
- **Chromeleon**

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Chromeleon 7.2

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TRACE 1300

Přímé sondy a
Vacuum Interlock

GC moduly

SW a HW vybavení

Servisní a aplikační podpora, spotřební materiál

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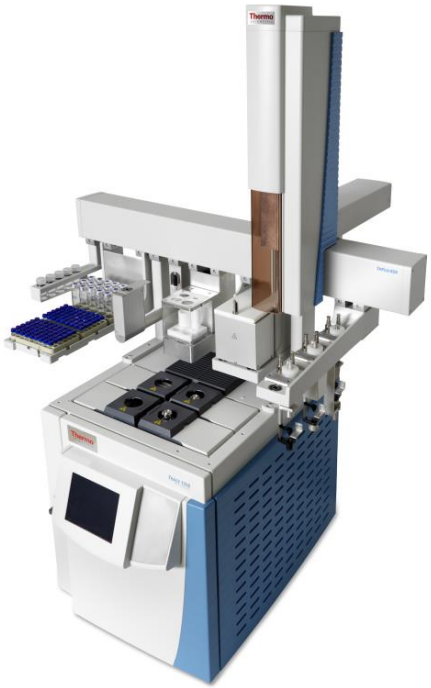
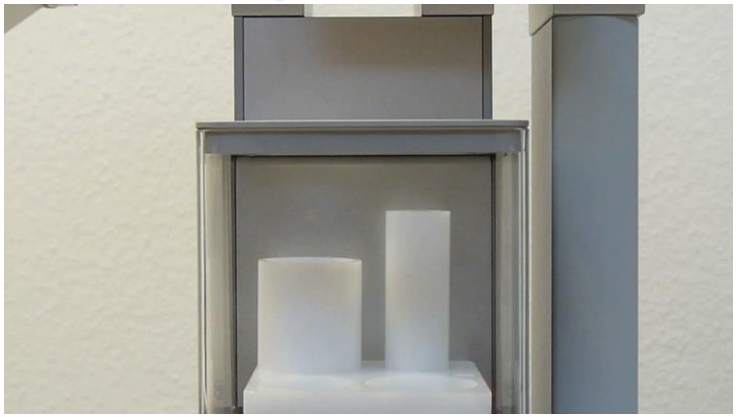
AUTOSAMPLER TriPlus RSH



- nástřik kapalin
- headspace
- SPME
- možnost automatické výměny stříkaček
- možnost rychlého míchání – vortex
- nástřik z malých objemů – bottom sensing



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AUTOSAMPLER TriPlus RSH

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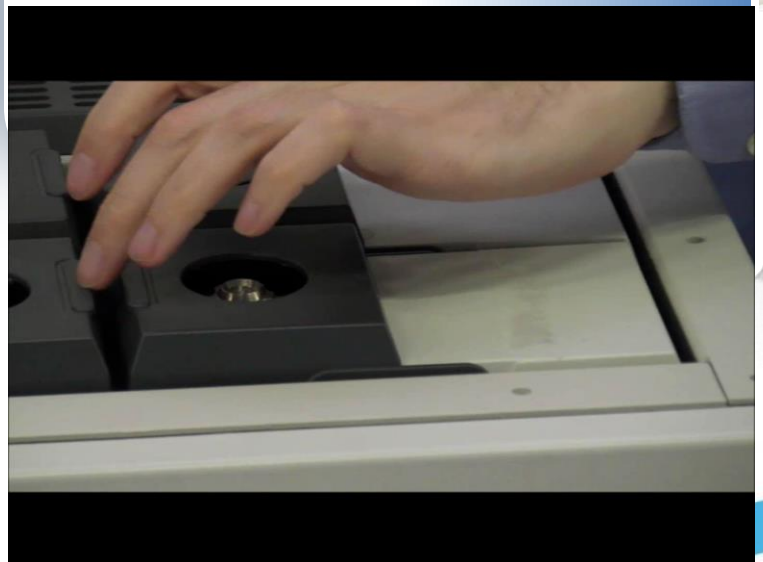
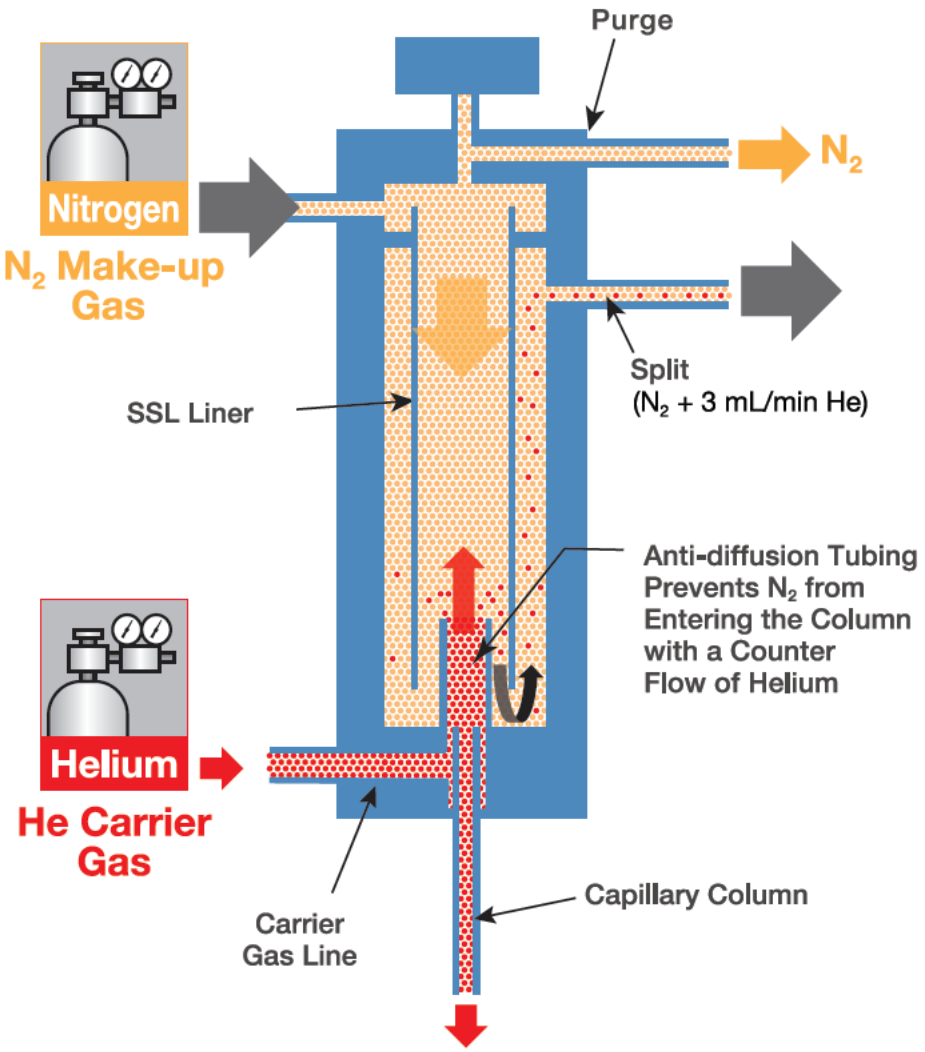
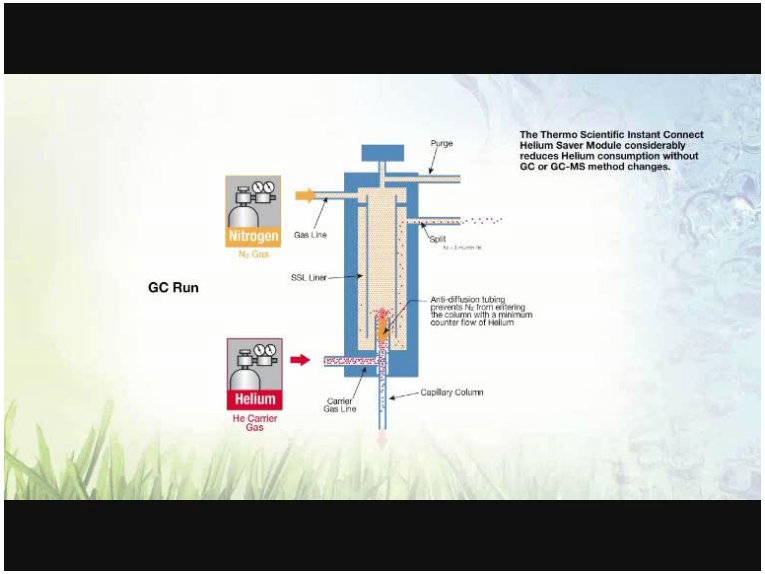
TRACE 1300

- Vyjímatelné injektorové a detektorové moduly
- Nová termostatovaná pec „1000 děr“
- Uživatelské rozhraní + nový SW



GC: HELIUM SAVER MODULE





Helium Saver Extends the Lifetime of the Helium Cylinde

- 3.5 years **continuously used 24/7/365 for GC-MS analysis**
- 5.4 years shutting helium off or to N_2 during weekends
- 10.5 years shutting helium off or to N_2 overnight (8 hr day)
- 14.6 years shutting helium off or to N_2 on weekends and overnight

This could be the **last and only** helium cylinder that will be needed for the lifetime of the instrument

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Q

IT

QqQ

hr-QqQ

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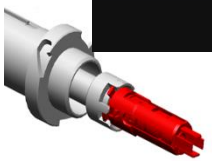
IONTOVÝ ZDROJ

Výměna a čištění iontového zdroje bez nutnosti porušení vakua



Vyjmutí iontového zdroje

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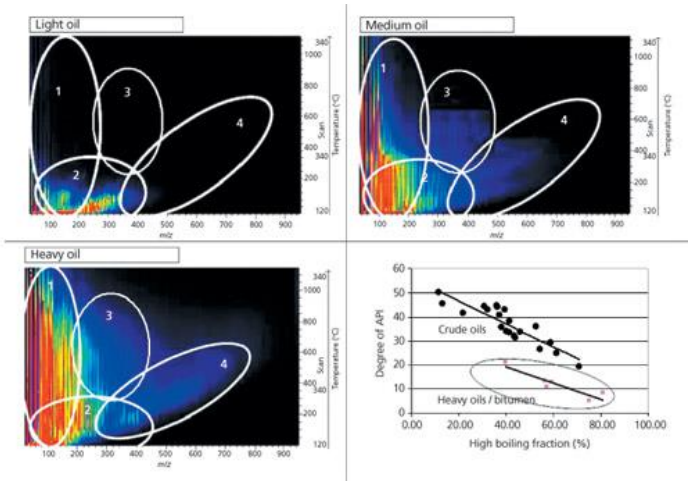
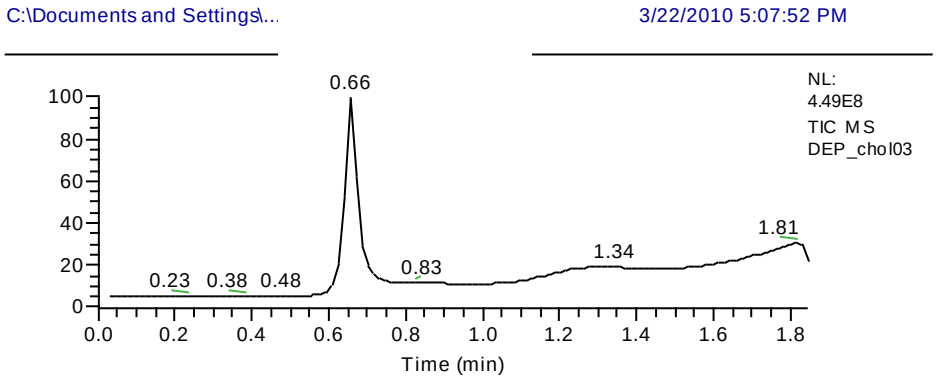
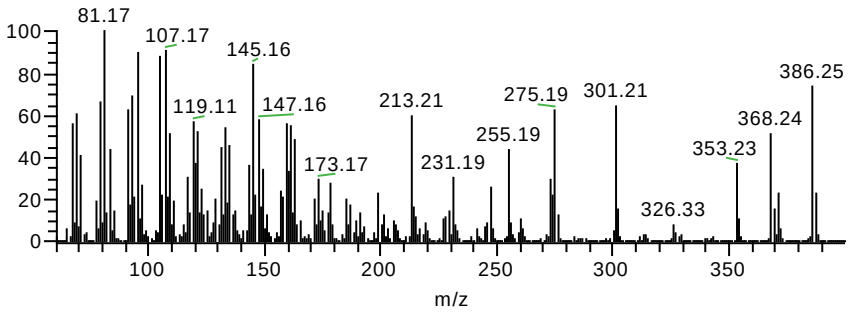
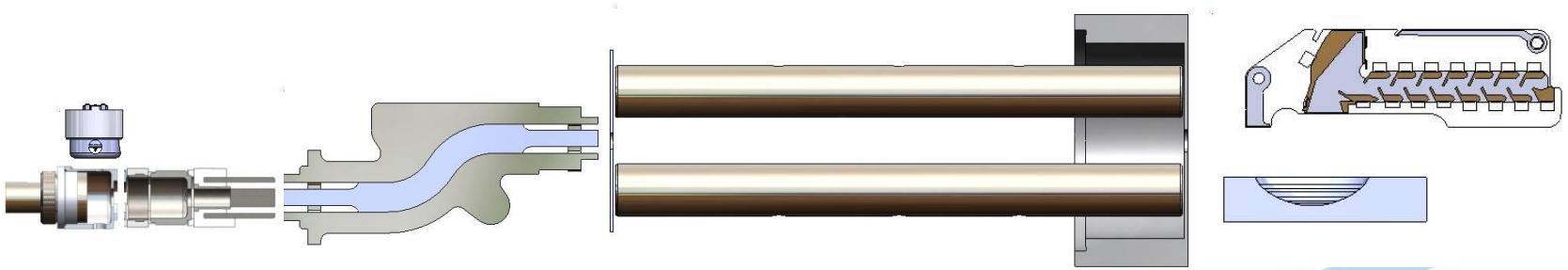
IONTOVÝ ZDROJ – DIP/DEP SONDY

Direct Probes sondy *ISQ LT*

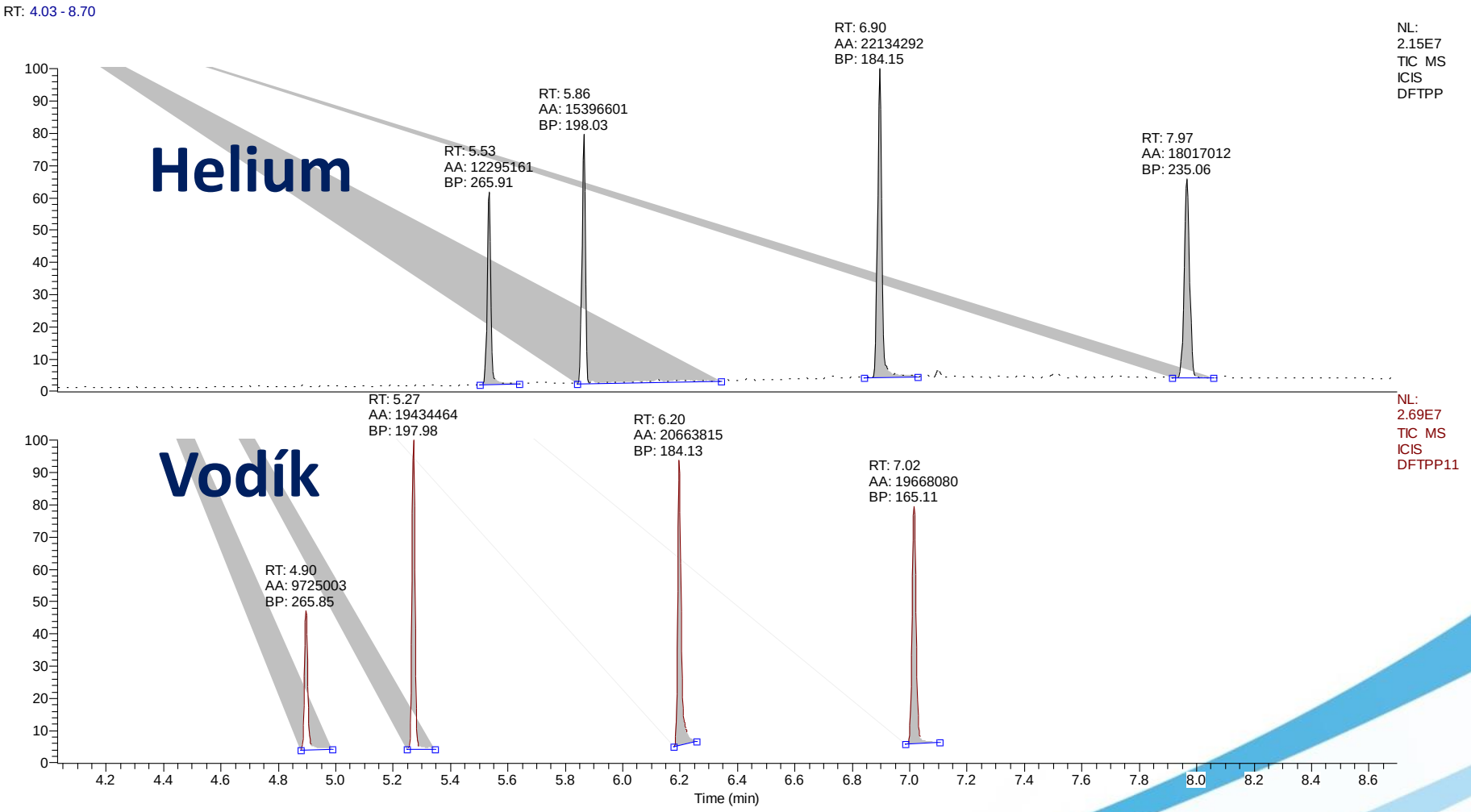




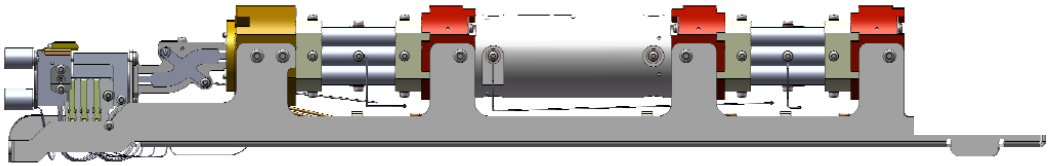




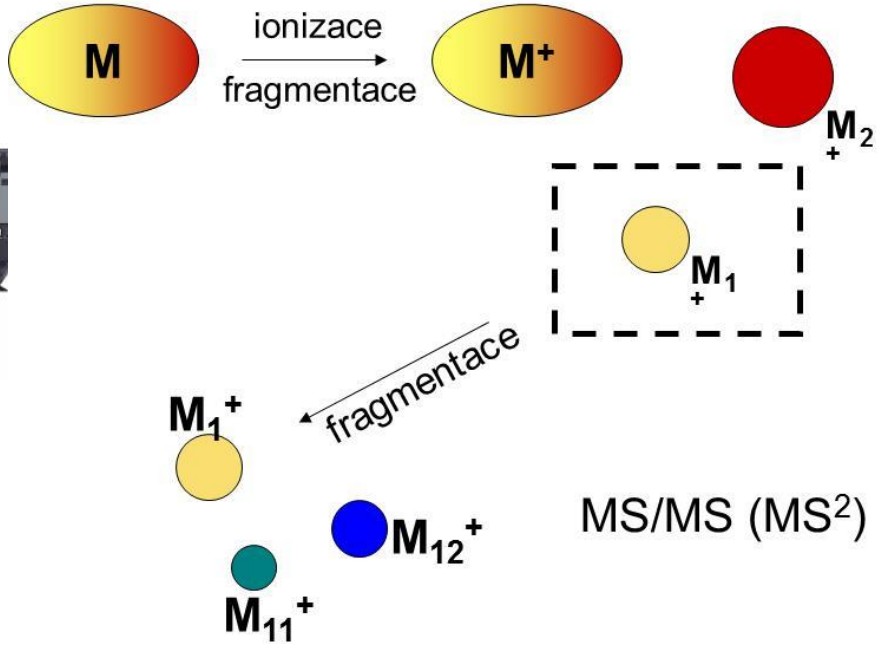
POUŽITÍ VODÍKU JAKO NOSNÉHO PLYNU



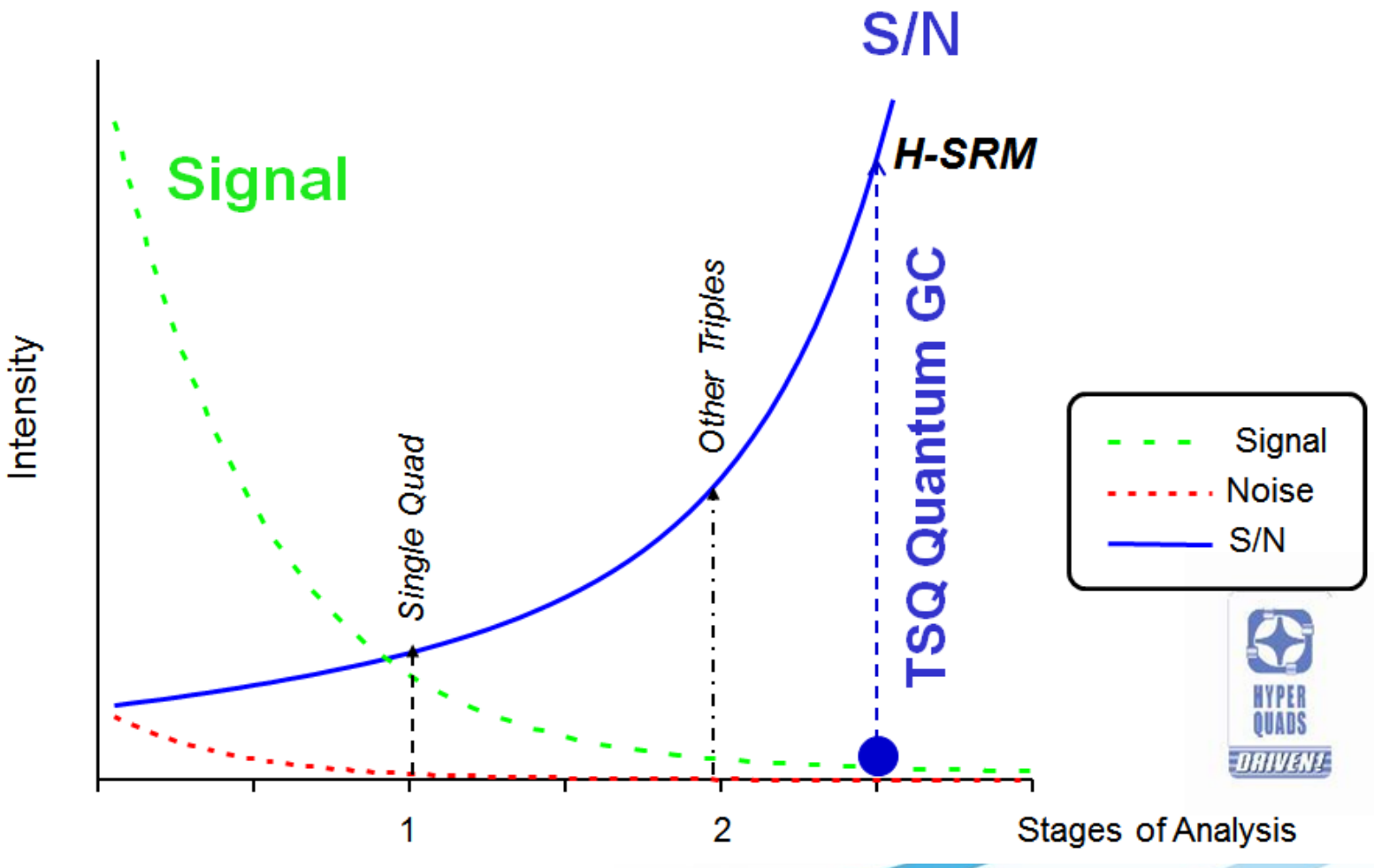
QqQ SYSTÉM PRO CÍLENOU ANALÝZU



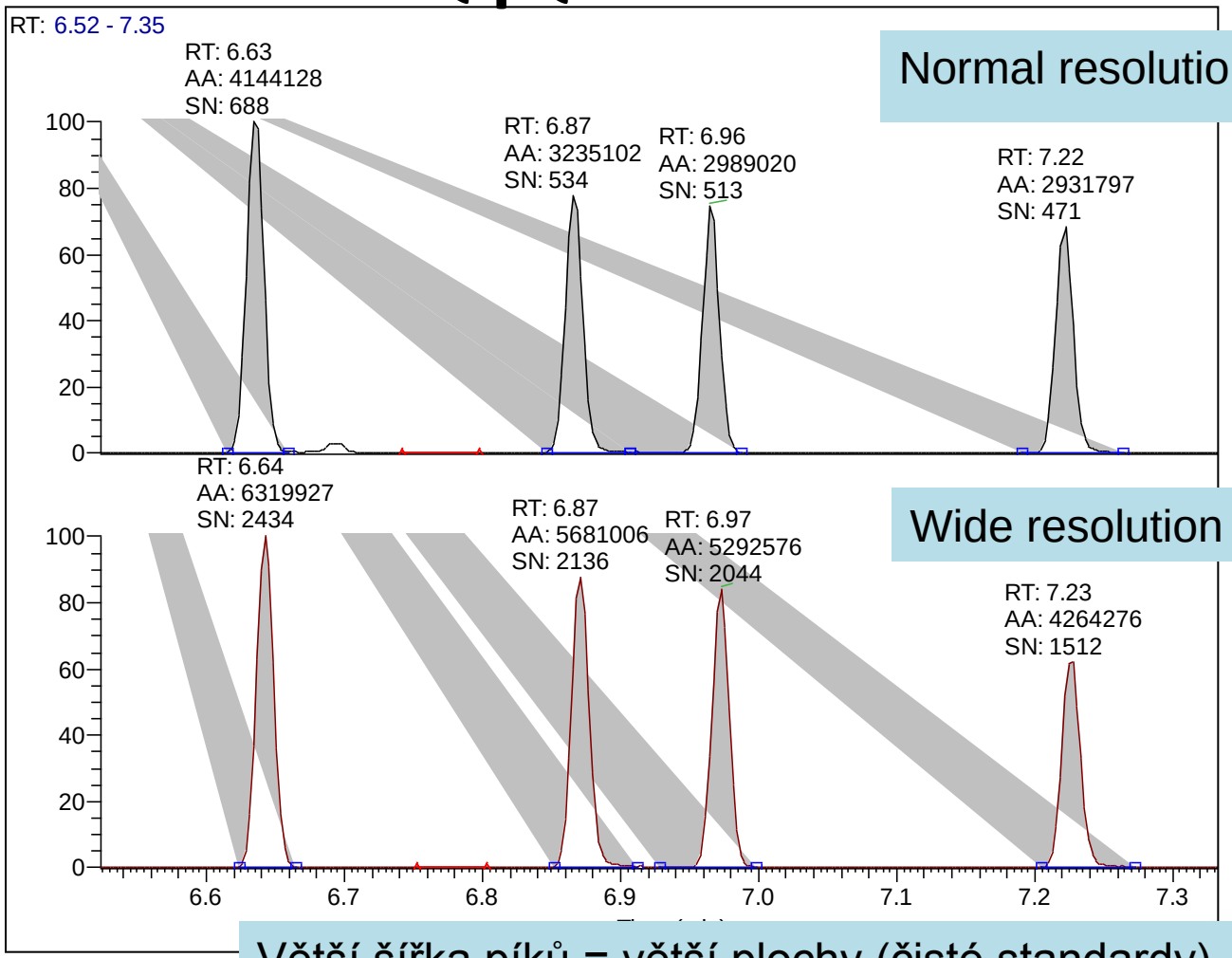
TSQ 8000



QqQ SYSTÉM PRO CÍLENOU ANALÝZU



hr-QqQ SYSTÉM PRO CÍLENOU ANALÝZU

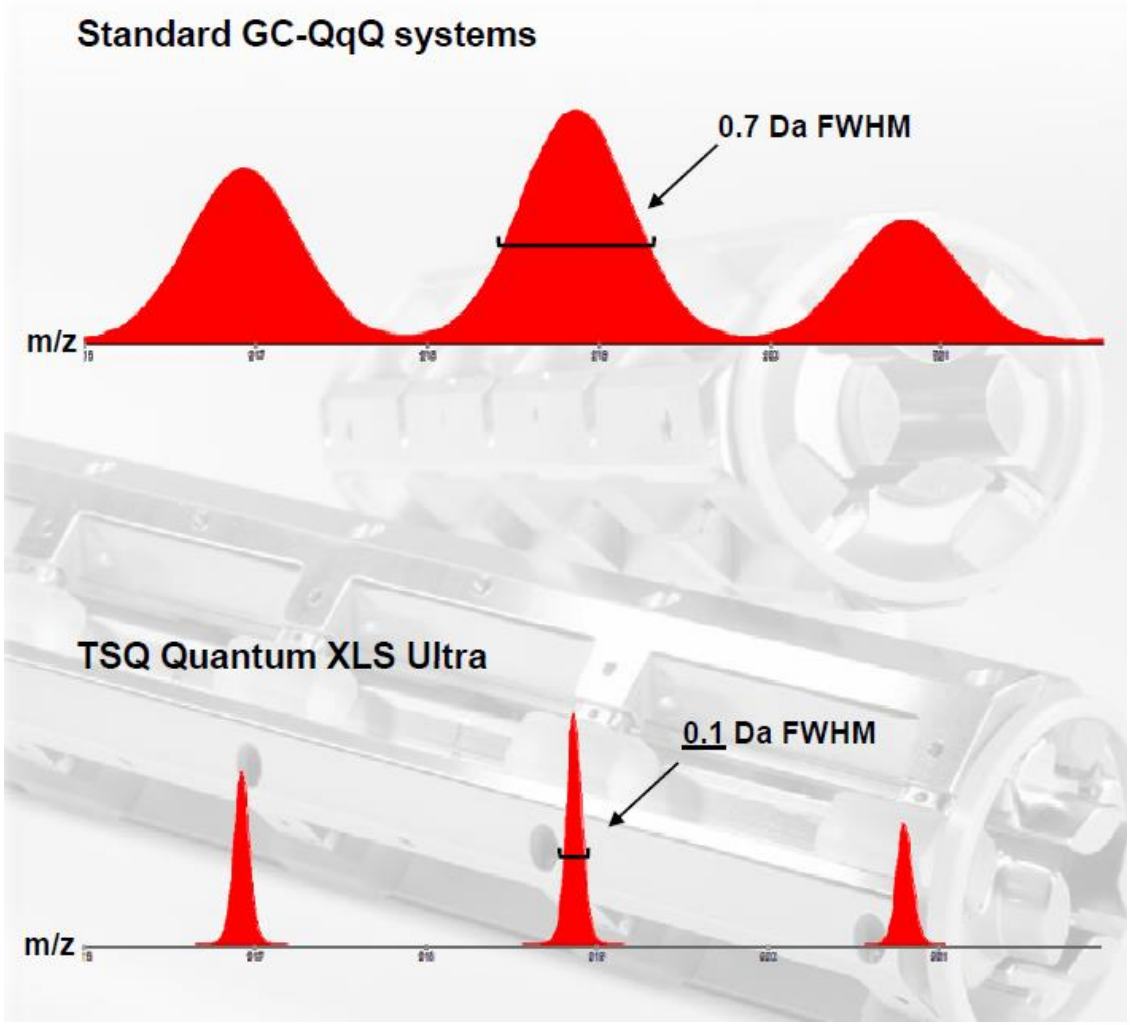


Normal resolution 0,7

Wide resolution 1.5

Větší šířka píků = větší plochy (čisté standardy)

hr-QqQ SYSTÉM PRO CÍLENOU ANALÝZU



HyperQuad technologie umožňuje **U-SRM**

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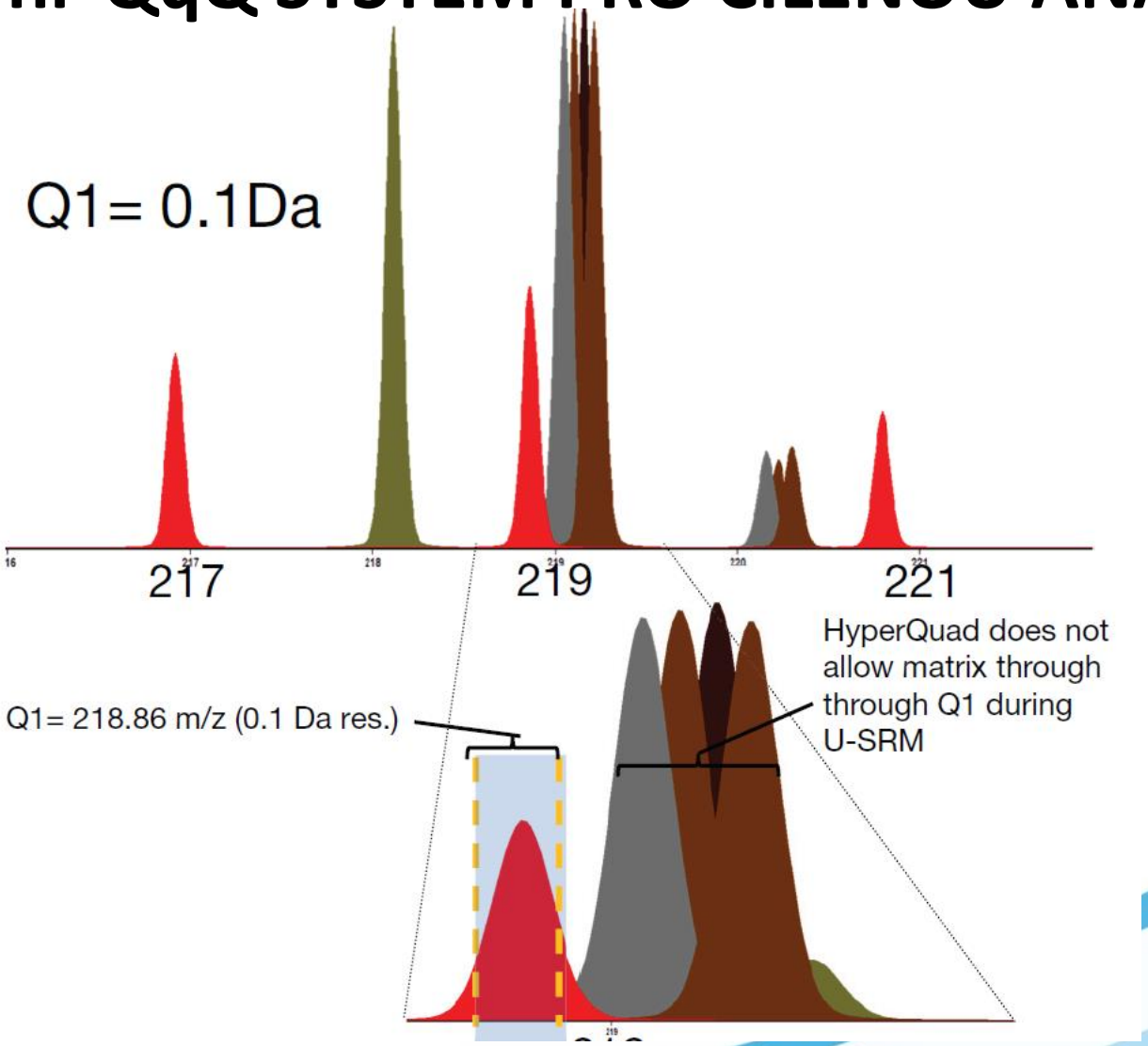
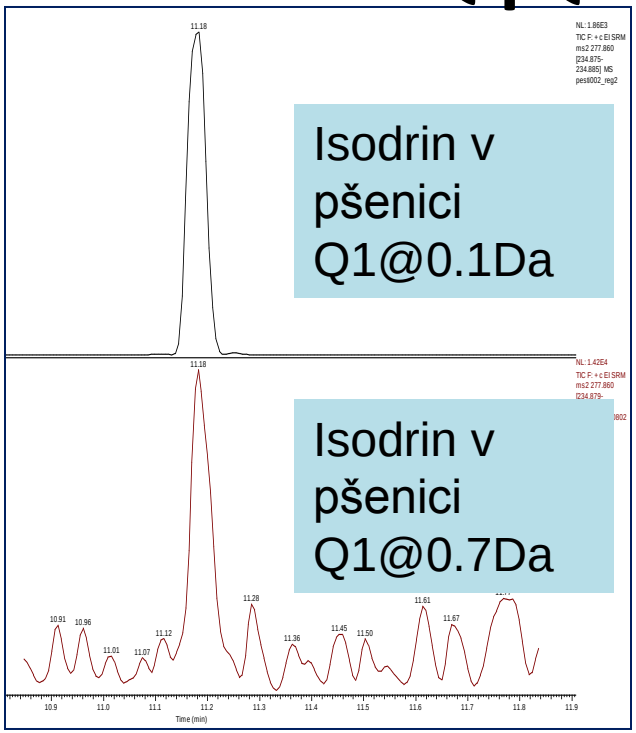
hr-QqQ SYSTÉM PRO CÍLENOU ANALÝZU

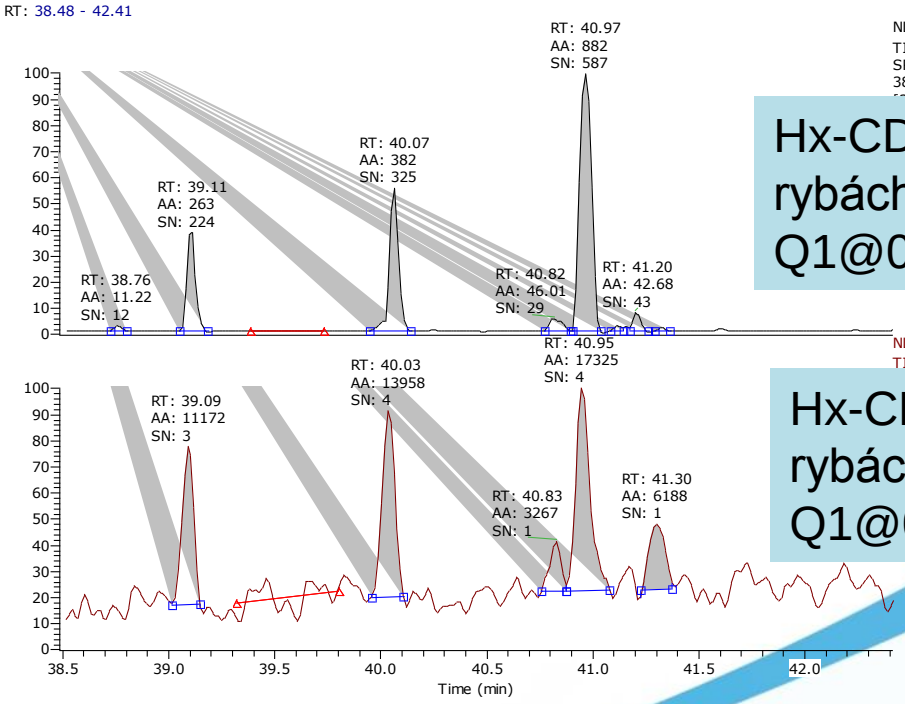


hr-QqQ SYSTÉM PRO CÍLENOU ANALÝZU



Isodrin v pšenici Q1@0.1Da

Isodrin v pšenici Q1@0.7Da



Hx-CDD v rybách Q1@0.1Da

Hx-CDD v rybách Q1@0.7Da

Odezvy (plochy) jsou nižší u 0.1Da

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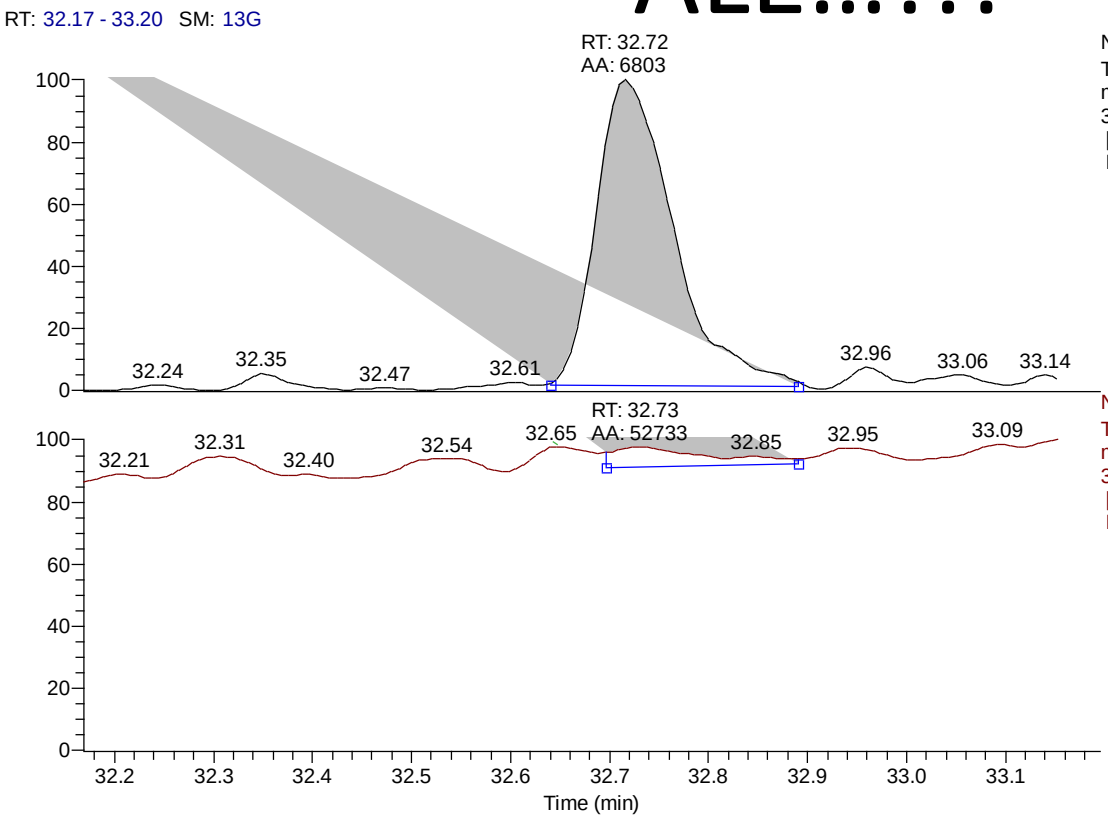
ALE...!!!



TCDF 0.1 FWHM
cca 40fg abs on column

TCDF při 0.7 FWHM
cca 40fg abs on column

V matrici je vyšší rozlišení klíčové

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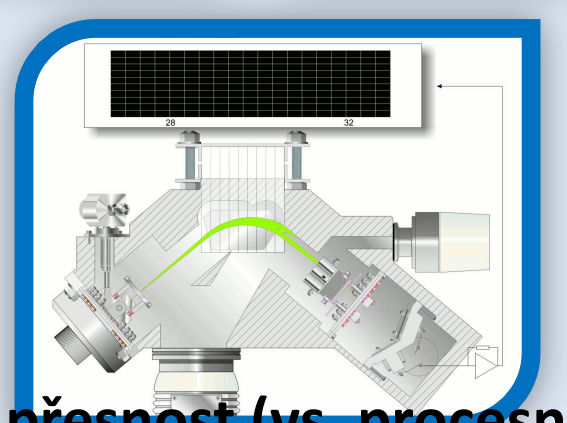
PROCESNÍ ANALYTIKA

Petrochemie & chemie

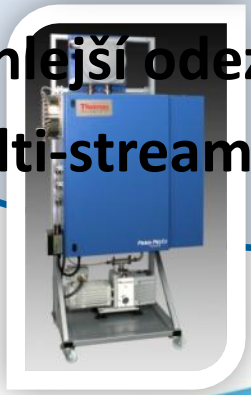
Prima BT



Železárny, ocelárny

- **větší přesnost (vs. procesní GC, IR)**
- **rychlejší odezva - v řádu sekund**
- **multi-stream monitoring**

Biotech & farmacie



Prima PRO Ex

Prima PRO

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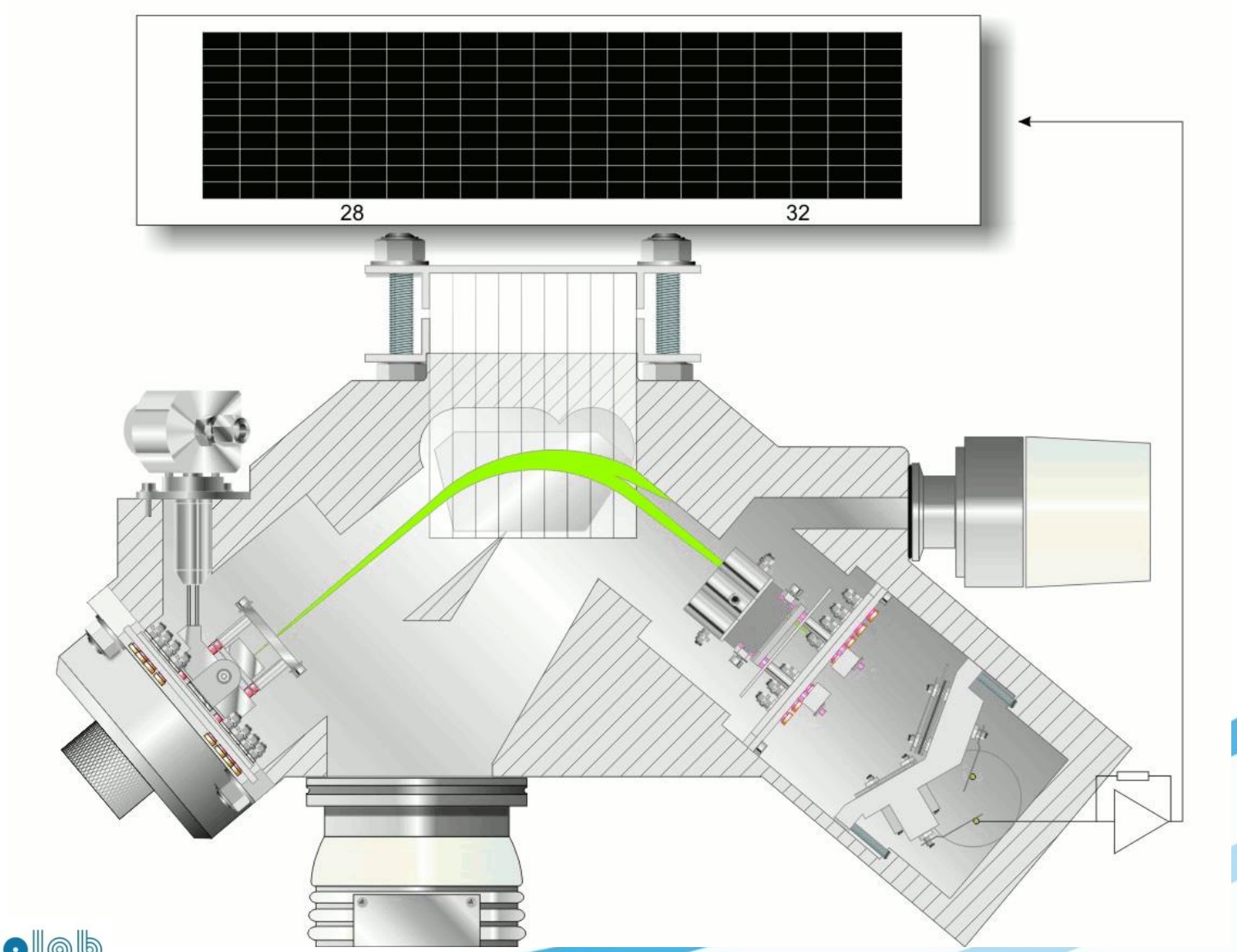
PŘESNOST, RYCHLOST



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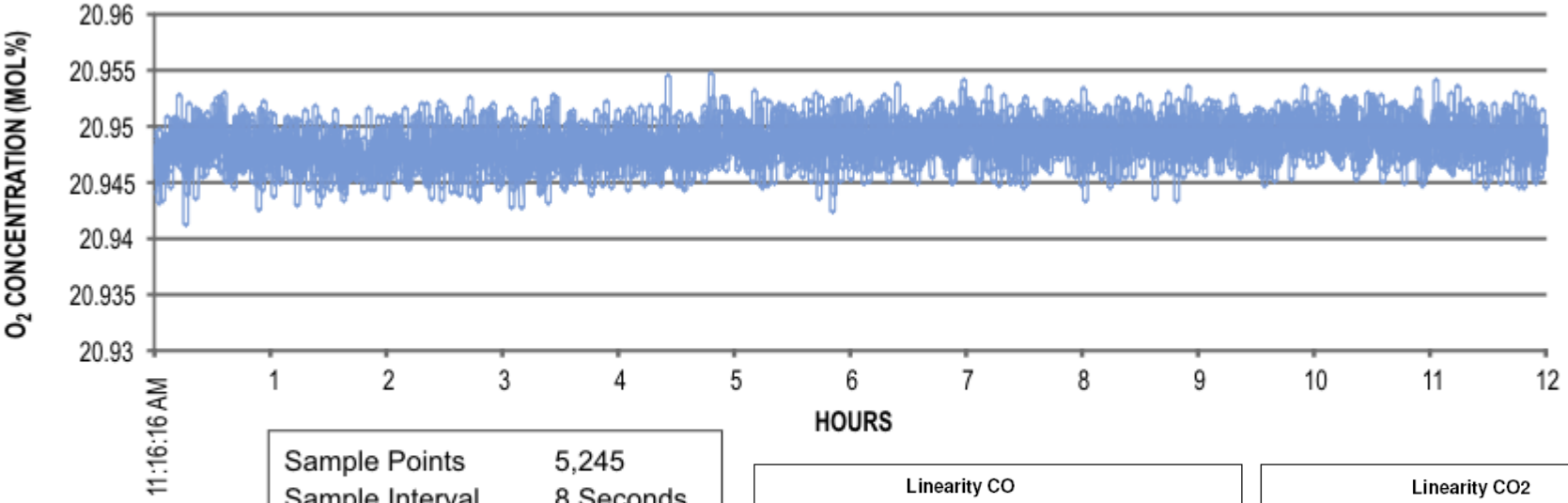
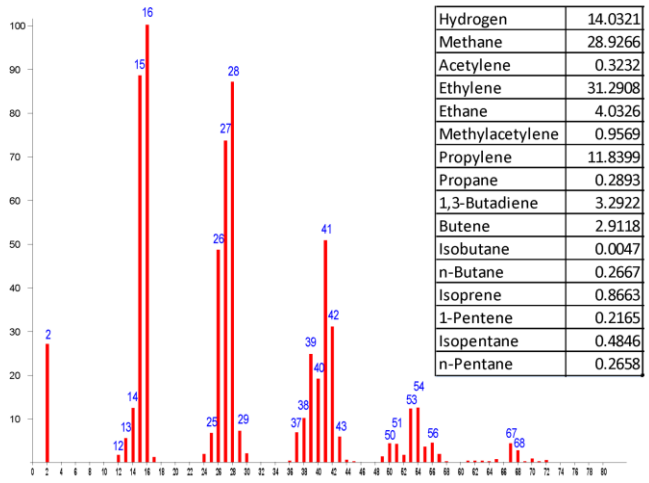
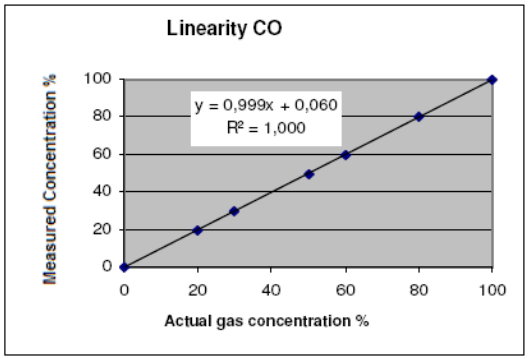
PŘESNOST, RYCHLOST

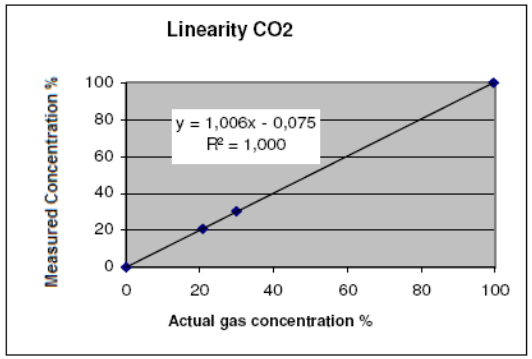


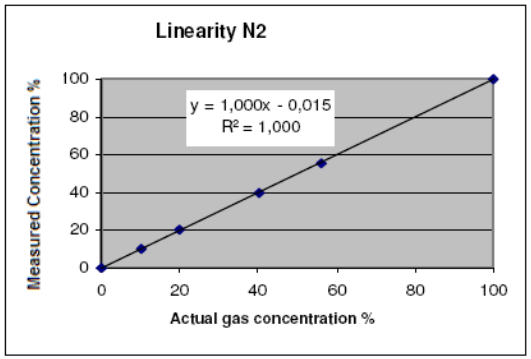
Sample Points	5,245
Sample Interval	8 Seconds
Mean Value	20.9485%
Std. Deviation	0.001169%
Rel. Std. Deviation	0.006%

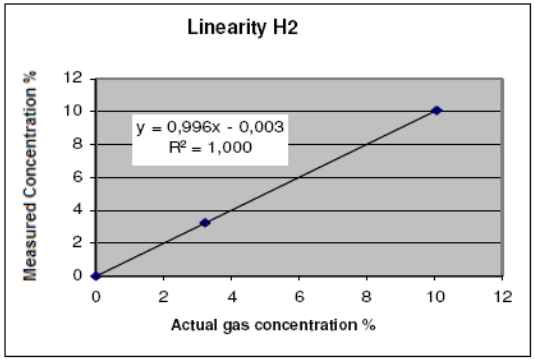


Hydrogen	14.0321
Methane	28.9266
Acetylene	0.3232
Ethylene	31.2908
Ethane	4.0326
Methylacetylene	0.9569
Propylene	11.8399
Propane	0.2893
1,3-Butadiene	3.2922
Butene	2.9118
Isobutane	0.0047
n-Butane	0.2667
Isoprene	0.8663
1-Pentene	0.2165
Isopentane	0.4846
n-Pentane	0.2658

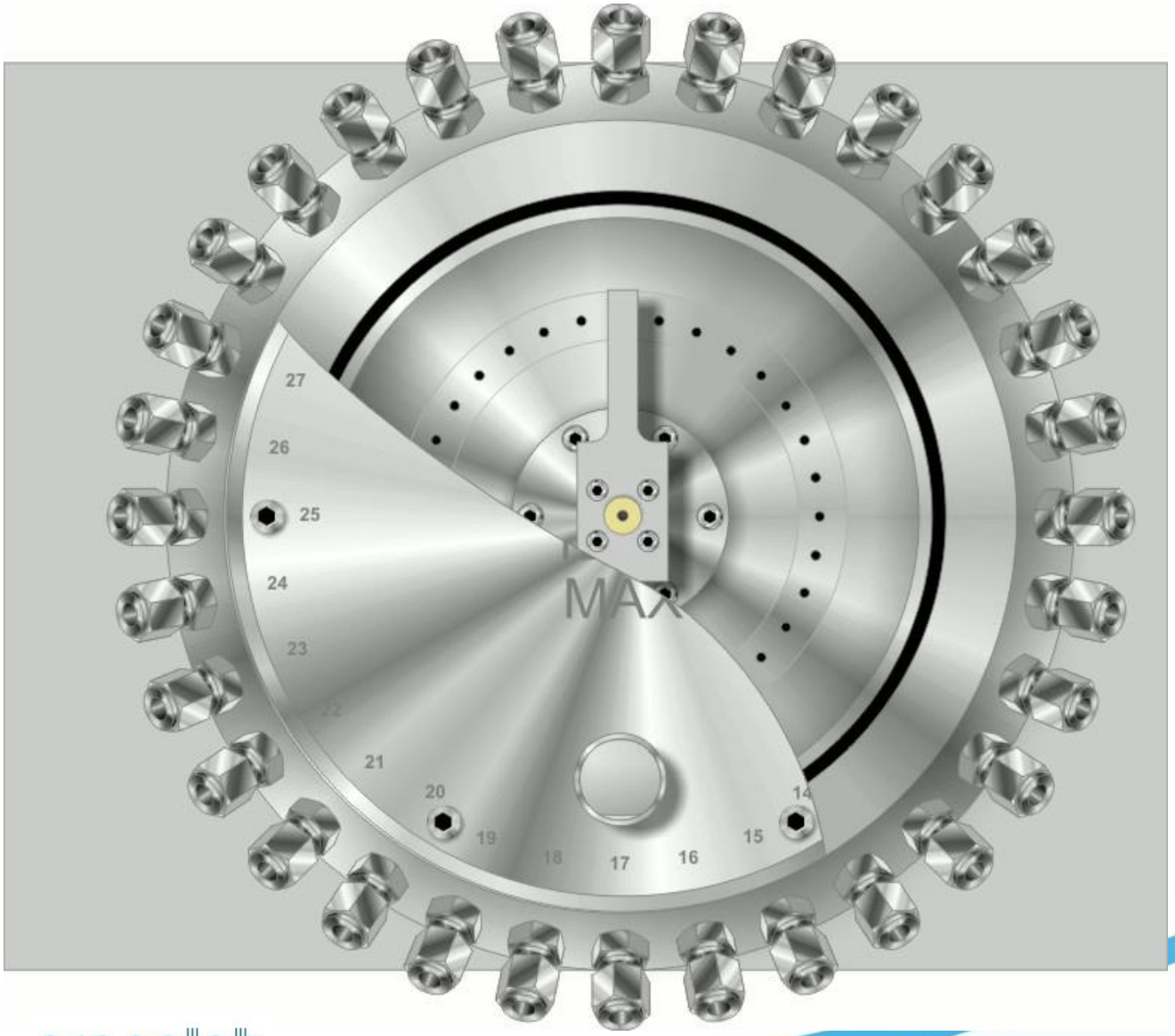


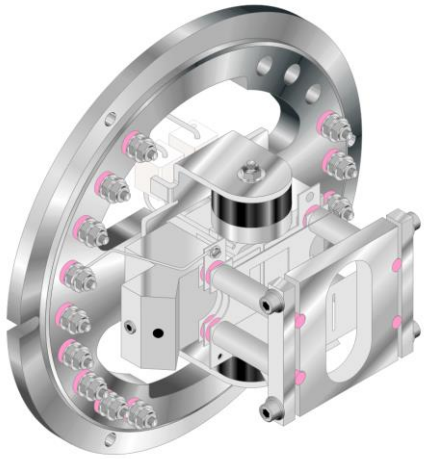


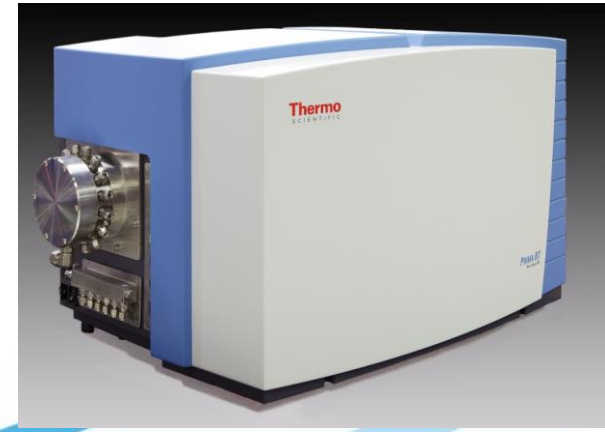




MULTI-STREAM







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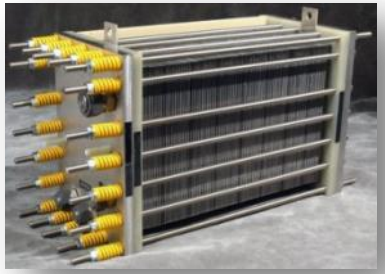
LABORATORNÍ APLIKACE



- Fermentace
- Biopaliva
- Vývoj katalyzátorů
- Termická analýza
- Kalorimetrie člověka
- Poloprovozní analýza
- Vývoj analýzy plynů

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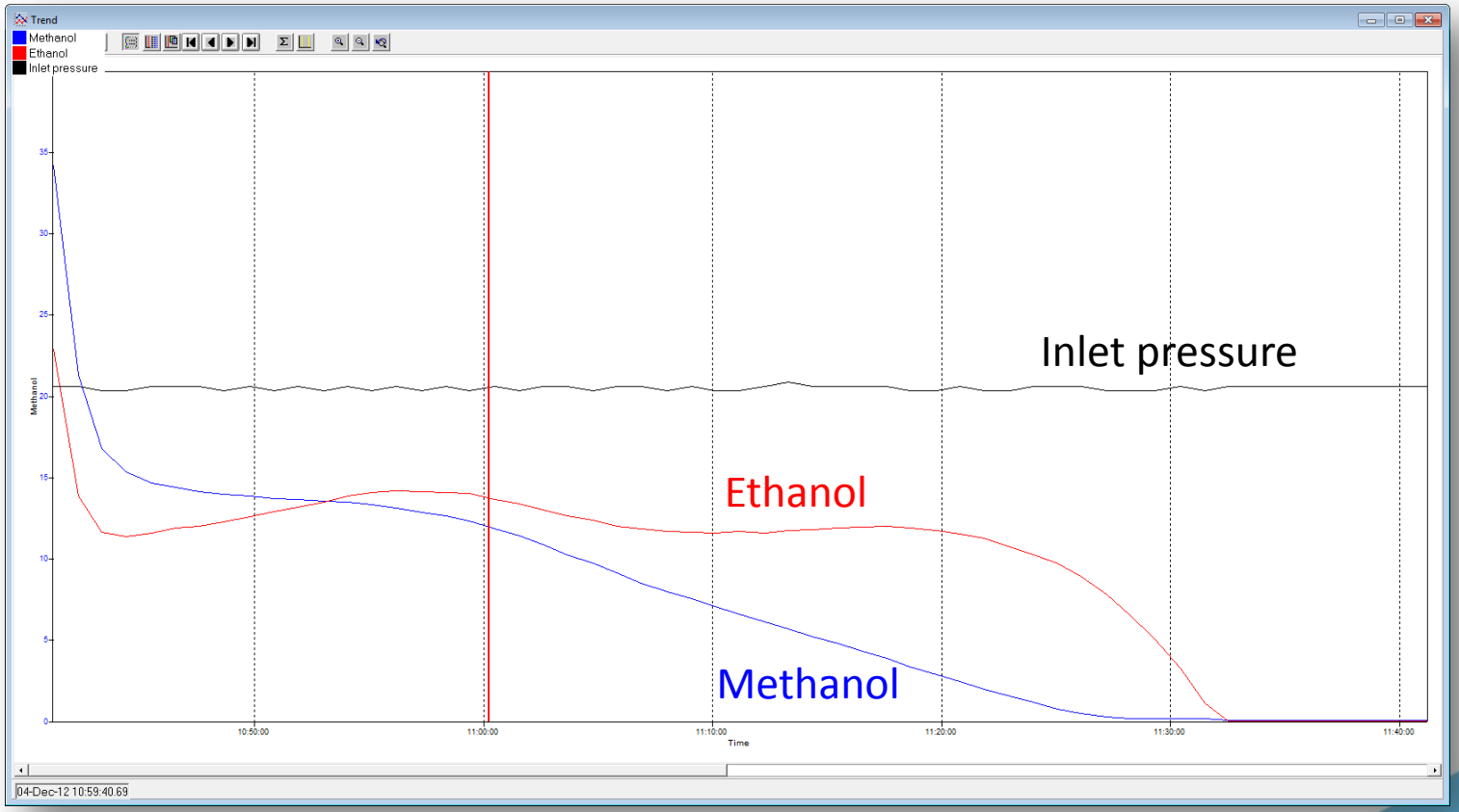
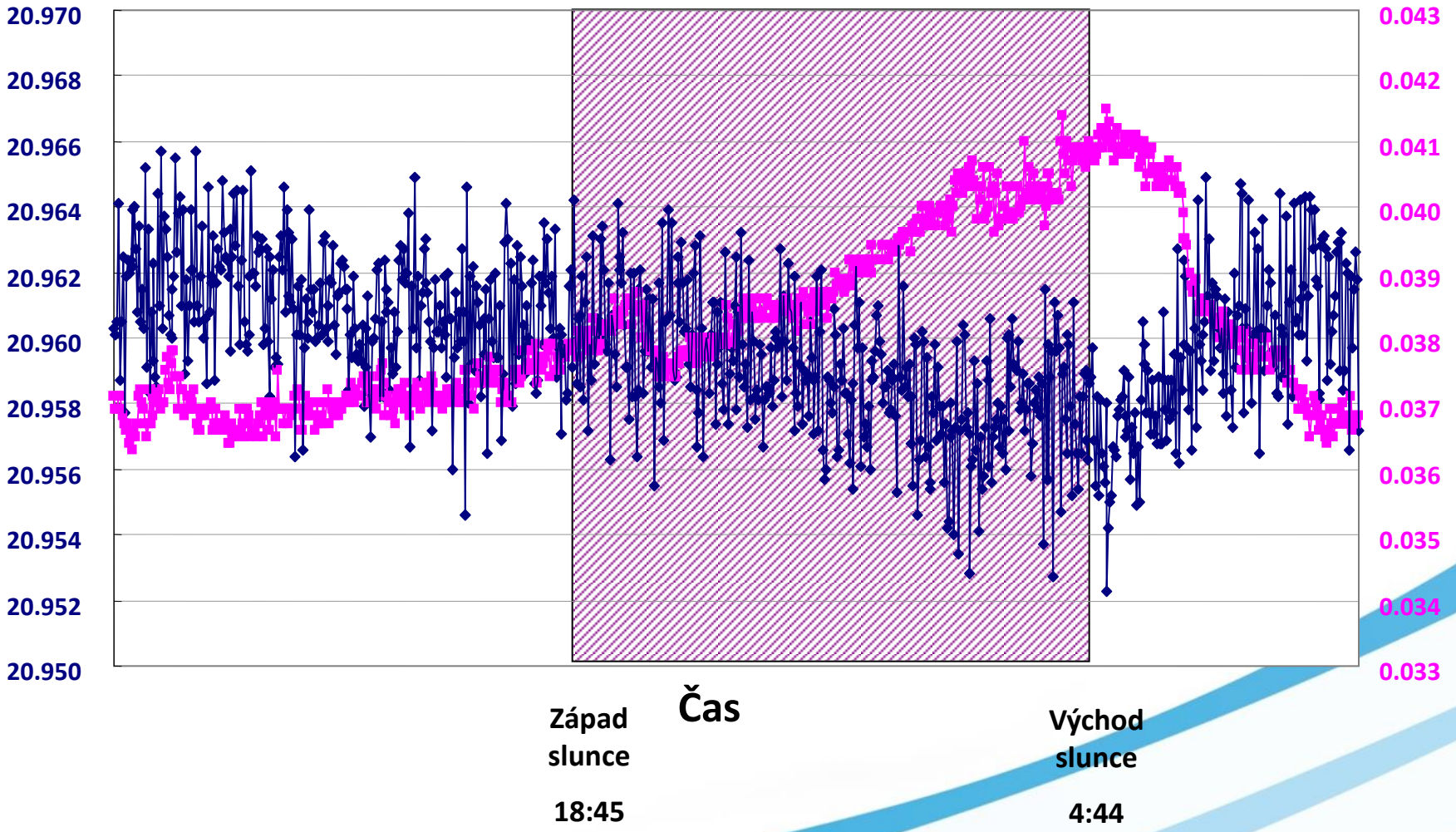
SUŠENÍ API – VÝROBA LÉČIVÝCH LÁTEK



FOTOSYNTÉZA

CO_2/O_2 změny v poměru během 24 hodin, okolní vzduch



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Děkuji za pozornost!

placek@pragolab.cz