



**INFITOP**  
Hi-Resolution & Compact TOF-MS



**Portable size Time of Flight (TOF) Mass Spectrometer,  
Realized by the innovative multi-turn technology.**

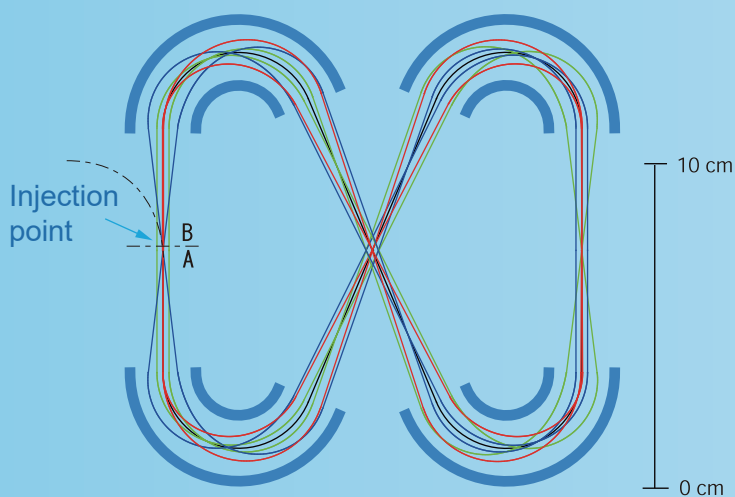
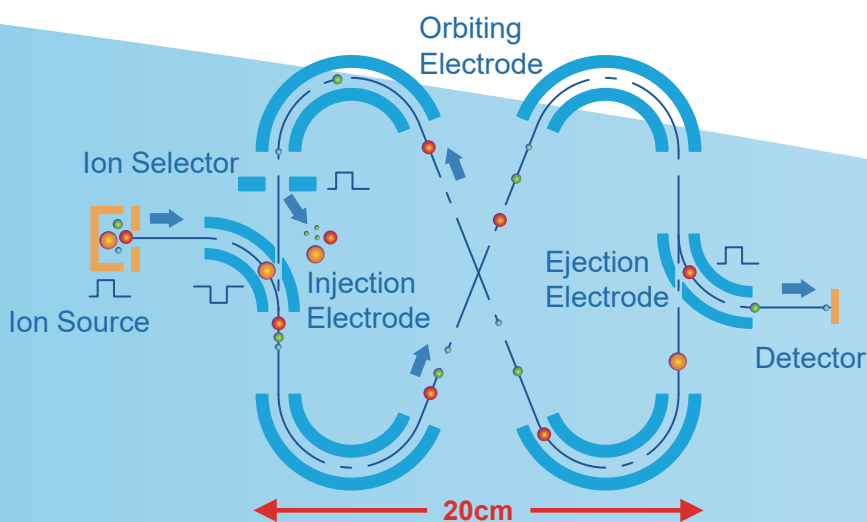
**The portable TOF-MS performs High Precision,  
High Resolution and Real-Time Analysis.**

High Performance and Small Foot print Time of Flight  
Mass Spectrometer by using the Multi-turn Technology

# infiTOF-DUO

Hi-Resolution & Compact TOF-MS

There are four orbiting electrodes and two injection/ejection electrodes on a palm-sized optics bench. The Ion source gives kinetic-energy for orbiting motion in the infinit loop. Injection and ejection electrodes are synchronized with Ion source pulsing triggering. Injection electrodes has to be in the on state while ions enter the analyzer, then has to be turned off before first ion (smallest ion) returns to it. Orbiting electrodes are constant, so orbiting ion can be held until ejection electrode is ON.

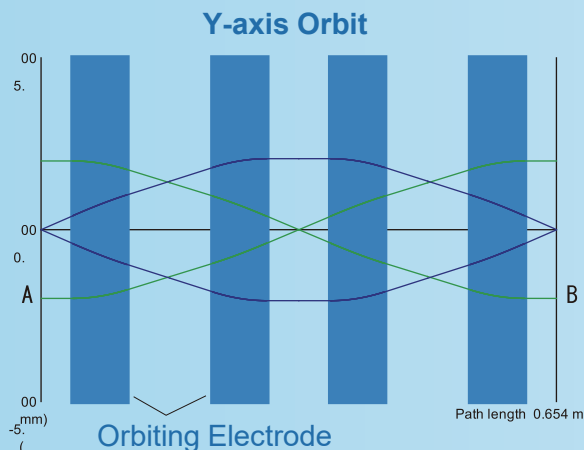
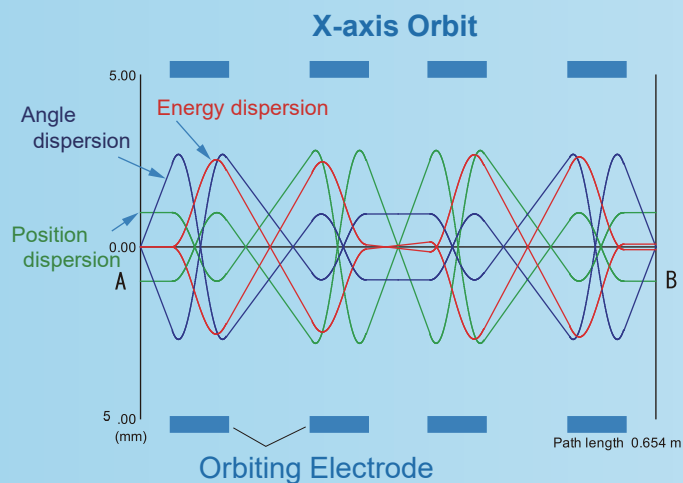


$$x_{max} = 0.001, \quad \alpha_{max} = 0.060, \quad \delta_{max} = 0.100$$

## “Perfect focusing”

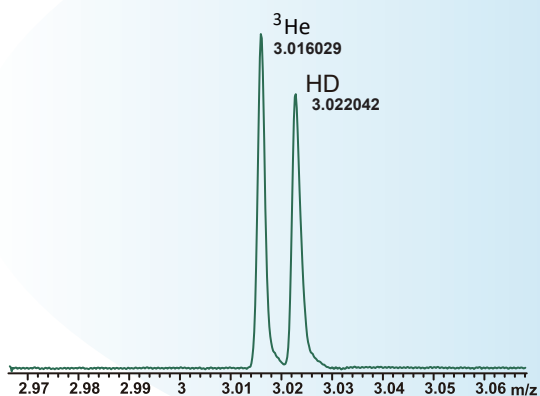
The same kind of technologies such as multi-reflection-TOF are exist, but they usually have a measurable trade-off between sensitivity and resolution.

The patented multi-turn optics made “perfect focusing” come true, and losing ions are about 1 to 2% per turn, which is related to mean free path in vacuum.

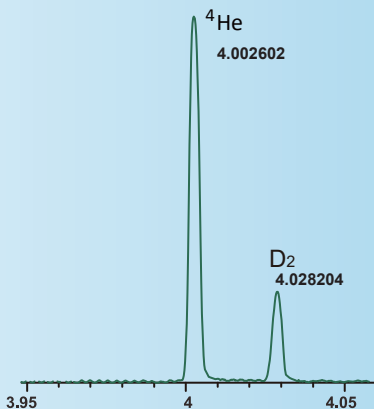


# 1. High-resolution separation of low molecular weight gases

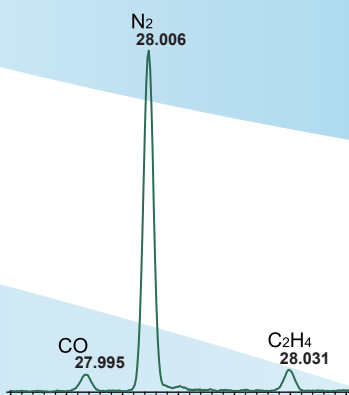
Separation for  $m/z$  3



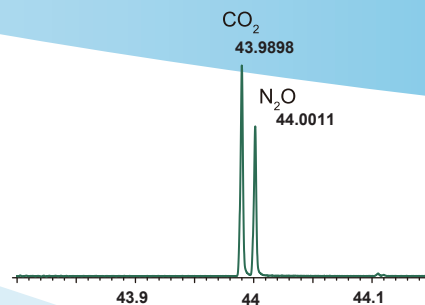
Separation for  $m/z$  4



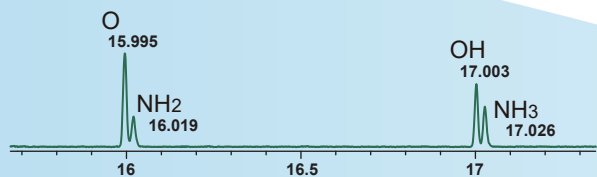
Separation for  $m/z$  28



Separation for  $\text{CO}_2$  &  $\text{N}_2\text{O}$  ( $m/z$  44)

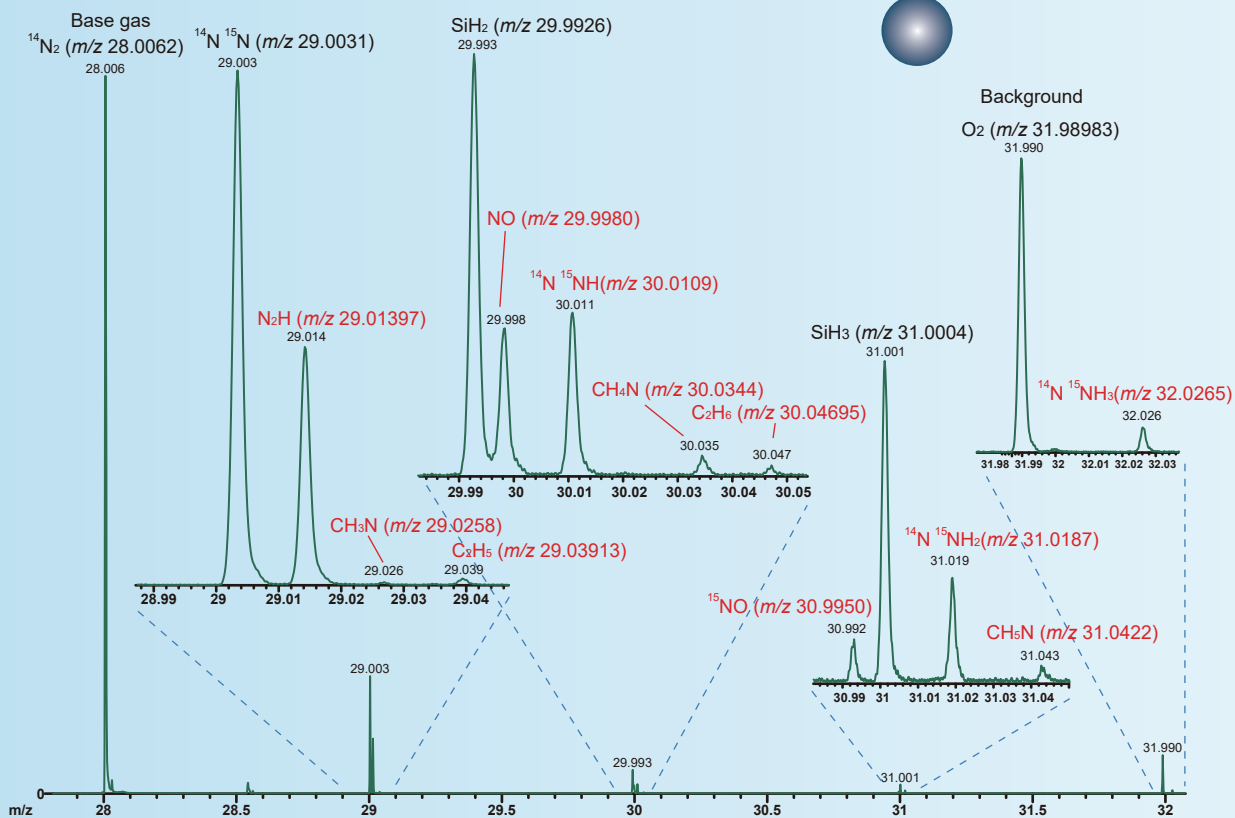


Separation for ammonium water



# 2. Process gases in "silane std gas"

< Silane 10ppm  $\text{N}_2$  base >



## Specification

Resolution	>30,000 (FWHM)
Mass range	1 to 1,000 m/z
Ion-source	El (Pos)
Sensitivity	$^{132}\text{Xe}$ (approx.30ppb in air) S/N>10
Mass accuracy	<0.002u (Internal Std) <0.005u (External Std)
Data recording speed	up to 50spectra/sec
Dimensions(mm)	W270 x H460 x D550
Weight	39kg



infiTOF-DUO

## Application

- Process gases monitoring for semiconducting manufactures
- Measurement of evolved gas from various materials by TPD-MS, TG-MS
- Analysis of trace components in Air and high-purity gas
- Contamination analysis of hydrogen gas for fuel cell
- Combustion gas analysis
- Isotope analysis

Pittcon2010  
Bronze Award



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