The (Brief) History of Mass Spectrometry at Agilent Technologies

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The story of Mass Spectrometry at Agilent Technologies starts with the founding of Hewlett-Packard (HP) in 1939 by two graduates Bill Hewlett and David Packard. They started the business part-time in the garage at 367 Addison Avenue Palo Alto. This site was officially opened in 1957, and is the birthplace of HP, Agilent and a leading Silicon Valley mecca. In 1965, Agilent became the biggest IPO of the time at Silicon Valley.

### The Start

1938 - Hewlett Packard

The story of Mass Spectrometry at Agilent Technologies starts with the founding of Hewlett-Packard in 1938 by William “Bill” Hewlett and David “Dave” Packard.

1957 - Birthplace of HP

HP was established in 1957 in the garage at 367 Addison Avenue, Palo Alto, California.

1965 - Analytical Instrumentation

It was not until the acquisition of FAME Scientific in 1965 that HP entered the analytical instrumentation field, which would lead to the development of the first mass spectrometer from HP, and a 48-year history of developments in MS technology.

### First Mass Spectrometers

1971 - 5930A GC/MS System

The first mass spectrometer introduced was the 5900A GC/MS system in 1971. The 5900A was a single quadrupole instrument, which included an ion source, mass detector, quadrupole, and an electron ionization (EI) source. It was one of the first time the introduction of a whole new model, the 5971, which featured a patented gold plated fused silica quadropole.

1974 - 5980 Series GC/MS System

The 5980 system implemented the use of a new technology for the first time - mass computer and became the basis of a family of floor standing units.

1979 - 5920 Benchtop GC/MS System -1976

The introduction of the 5920 was a milestone in the development of benchtop GC/MS, and became the basis of a family of benchtop systems.

1982 – the first “MSD”

After several enhancements to the 5920, a unit was created in concept for benchtop GC/MS was proposed by Ned Kuypersto make a MS that became a GC detector and coupled to the recently introduced HP 5890 GC. This quadrupole forms the basis of Agilent’s current “MSD” family of systems.

1984 – 1996 GC/MS for all.

Development of the MSD concept continued, with important advancements in instrument control with new PC applications, such as control of a GC/MS. Agilent continued to lead the way in instrumentation, offering a range of options for users. The 5973 MSD - Gold introduced in 1994 provided users with a range of options in their analysis.

### Taking MS to the Masses

1997 – 1999 Floor Standing Systems Evolution

With the introduction of the 5992 was a milestone in the development of benchtop GC/MS, and became the basis of a family of floor standing units.

1994 – 2001 Benchtop ICP-MS

The HP4500 Series ICP-MS was the first benchtop handheld ICP-MS system, offering improved performance though electronic advancements and addition of external thermal changes  and offering both good resolution and mass accuracy in a benchtop unit.

2000 – 2009 New MS Technologies and Shrinking Products

Agilent continued to invest in the development of new technologies that would continue to take the technology of MS from lab to benchtop. This period also saw the introduction of improved GC/MS performance through electronic advancements and materials selection.

### Expanding Technologies Routine, Reliable and Robust for Every Analysis

1997 – 2003 New Benchtop LC MS Technologies

To complete the portfolio of benchtop MS technologies, HP developed a benchtop single quadrupole LC/MS system in 1997. This period also saw the introduction of improved GC/MS performance through electronic advancements and materials selection.

2003 LC Time of Flight Systems

With a dedicated MALDI-TOF system in the late 90s, Agilent entered the liquid chromatography (LC)-MS system in 2003. This led to the introduction of a whole new model, the 5970, which featured a patented gold plated fused silica quadropole.

2006 – 2009 New MS Technologies and Shrinking Products

This period also saw the introduction of improved GC/MS performance through electronic advancements and materials selection.

### References

1. US Patent 5,838,003
2. 2 US Patents 6,410,641, 6,728,110

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