ON-LINE TRAPS IN ATOMIC SPECTROMETRY:
SIMPLE, SENSITIVE AND ECONOMICAL ALTERNATIVES

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Atomic absorption spectrometry (AAS) is being replaced by plasma spectrochemical techniques in most laboratories in industrialized countries. ICP-AES and ICP-MS are two popular techniques; it is possible to use these instruments with great efficiency, as they are multi-elemental in nature, although running costs are high. On the other hand, AAS techniques are still widely used. Along the simple and low-sensitivity flame AAS instruments, hydride, cold vapour and electrothermal systems are capable of competing with some plasma techniques regarding sensitivity.

We have been working on economical atom traps for the few past years. Essentially, the ideal trap design should not contain any high power and high cost features such as plasmas or graphite tube atomizers but rather simple atomizers, such as flame, cold absorption tubes or heated silica atomizers should be employed. Some examples to be presented are:

- A cold vapour Cd analyzer with a heated Pt wire trap; LOD is 3.7 ng/L.
- A hydride generation Bi analyzer with a heated W-coil trap; LOD is 2.7 ng/L.
- A hydride generation Pb analyzer with silica on-line trap; LOD is 19 ng/L.

Analytical specifications of these systems, their advantages and their chance of being alternatives to other sensitive techniques will be discussed.