beaglehole instruments

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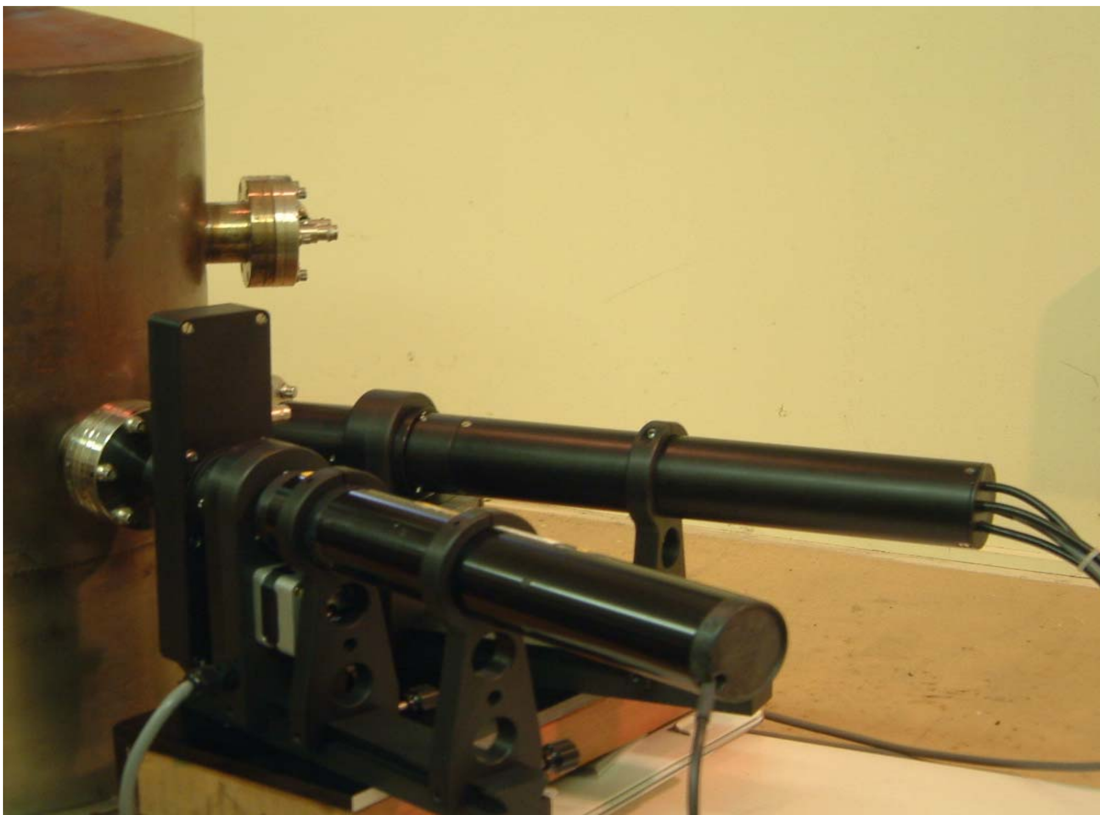
Leader in extreme thin film metrology

Improve process control with BIL's Confidence product family of in-line and in-situ metrology systems.

Beaglehole's new family of in line and in-situ OEM ellipsometers leverage almost 20 years of experience with phase modulated technology. The **Confidence** line of products can be readily fitted into IC manufacturing process equipment for applications including ALD, CVD, CMP, epitaxial growth and cleaning.

With capability up to 100 measurements a second, these field tested components are mounted on short optical slides These arms can be bolted directly to stand alone or multi-chamber systems as shown



The Near normal mounting configuration shown is useful for studying anisotropy during film deposition in epitaxial layer formation. For surface layer thickness and refractive index characterisation by ellipsometry the arms are opened to angles of incidence of up to 75 degrees depending upon the application and window availability. Examples of this type of application include measurement of nitrided oxides for thin gate stacks, high K dielectric depositions, and III-V and II-VI film growth for photonic applications, studies of residues
following CMP processing or surface cleanliness studies.

Advanced diagnostic software is integrated into the **Confidence** family of products that allow for auto calibration of the system, data analysis, and trend plotting.

Confidence Product Family

All instruments come with a stand-alone computer-controlled Measurement Controller which drives the polarising components, records and analyses the data, interfacing with the customer network via a serial port.

Confidence 100

Used for high precision studies of transparent layers- sample cleanliness, extreme thin layers, real time studies measurement , and fabrication control.
Single wavelength high sensitivity, high speed ellipsometer, using Diode laser, Diode detector, Dual lockin amplifiers and high stability Birefringence Modulator

Confidence 200

Used for 1.4 nm thin nitride/oxide layer characterisation on silicon.
Spectroscopic UV studies 200 to 400nm spectral range, Deuterium source, MgF_2 polarising optics, UV photomultiplier detector, and High Stability Birefringence Modulator
Other spectral regions between 200nm and 2000nm available.

Confidence 300

Imaging system with single- shot imaging of large or small areas for surface inhomogeneity or patterned surface studies.

A precision table which will accomodate all the above systems is available for variable angle of incidence and research applications.