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G*A*TR™

The G*A*TR™ grazing angle ATR accessory is a revolutionary approach to the analysis of monolayers on semiconductor and metallic substrates. The G*A*TR™ is optimized for high sensitivity to these types of samples. Its specially designed pressure applicator is optimized for delivering good contact between the sample and the Ge ATR crystal. The GATR™ provides at least an order of magnitude increase in sensitivity relative to grazing angle methods, in addition to the convenience of an easy to use, fully prealigned, horizontal sampling accessory.



APPLICATIONS

- Analysis of monolayers and adsorbed species on semiconductors and metals.
- Rapid, repeatable measurements.

FEATURES

- Convenient horizontal sampling surface.
- Built-in pressure applicator optimized for contact with hard samples.
- 65º fixed incident angle.
- Ge ATR crystal.
- Accommodates samples up to 8” in diameter with center-sampling of discs up to 6” in diameter.
- PermaPurge™ for rapid purging of the system.
- Optional polarizer for enhanced spectral contrast and orientation studies. Includes slide plate mount.
- Optional torque screwdriver and slip-clutch for repeatable pressure application.

INCLUDES

- Ge hemispherical ATR crystal.
- Built-in pressure applicator, designed to accommodate large samples.
- Mounting hardware for the specified spectrometer.

ORDERING INFORMATION

	CATALOG NO.
G*A*TR™	G*A*TR-XXX*

OPTIONS AND REPLACEMENT PARTS

Slip-Clutch, 56 in-oz	SLP-CHI
Torque Screwdriver	PTW-SXX
Mounted Ge ATR Crystal	G*A*TR-ATR-J
GATR™ Wire Grid Polarizer (KRS-5 substrate). Includes mount and polarizer	PWD-GATR-XXX*
Wire Grid Polarizer Mount for the GATR™ (use with PWD Polarizer)	PWC-GATR-XXX*

**XXX indicates spectrometer make and model*

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The G*A*TR™ is a single reflection ATR accessory designed for analyzing monolayers and adsorbed species on semiconductor and metallic substrates.

The G*A*TR™ integrates the theoretical conditions that provide the highest sensitivity to these extremely thin films[1,2] in a convenient horizontal ATR sampler. The G*A*TR features a 65º incident angle and a Ge ATR crystal for use from 5000 to 650 cm^{-1}. Its specially designed pressure applicator optimizes contact between the sample and the relatively small active portion of the crystal. For greater sensitivity, a polarizer can be added to the G*A*TR and, for repeatable measurements, a torque screwdriver or slip-clutch can be used to maintain consistent contact.

Figures 1 and 2 demonstrate the high sensitivity of the G*A*TR to monolayers. Figure 1 is a spectrum of an organic monolayer on a polished silicon surface. Figure 2 shows the spectrum of a monolayer on a gold-coated glass substrate.

For sampling versatility, the G*A*TR can also be used to analyze liquids, powders, pastes, and other solids. It is especially useful for samples with intense spectral bands. Such samples might otherwise exhibit too high absorbance or band distortions.

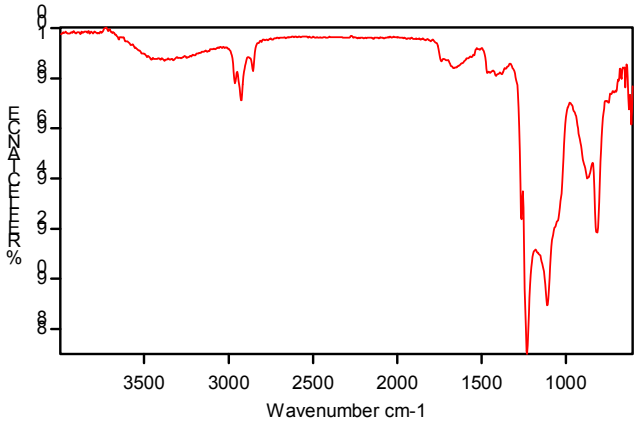


Figure 1. ATR Spectrum of an Organic Monolayer on Silicon.

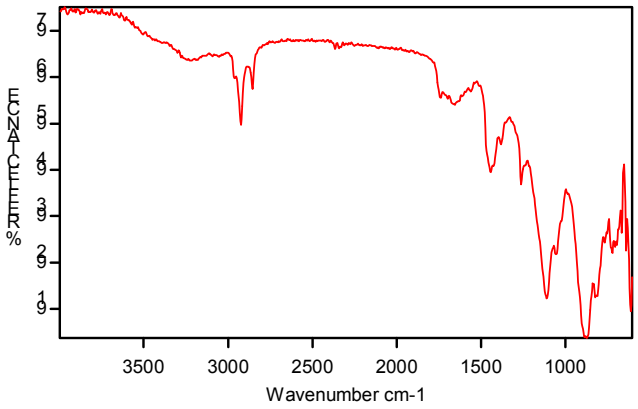


Figure 2. ATR Spectrum of an Organic Monolayer on Gold.

[1] M. Milosevic and S. L. Berets, 'ATR of Monolayers on Si and Neat Powders by Single Reflection ATR,' PittCon 2002 invited paper.

[2] S.L. Berets and M. Milosevic, 'ATR Spectroscopy of Thin Films on Silicon,' paper in preparation.

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