We don't have anything against mass spectrometry.
We just think it's time for a **worthy alternative.**

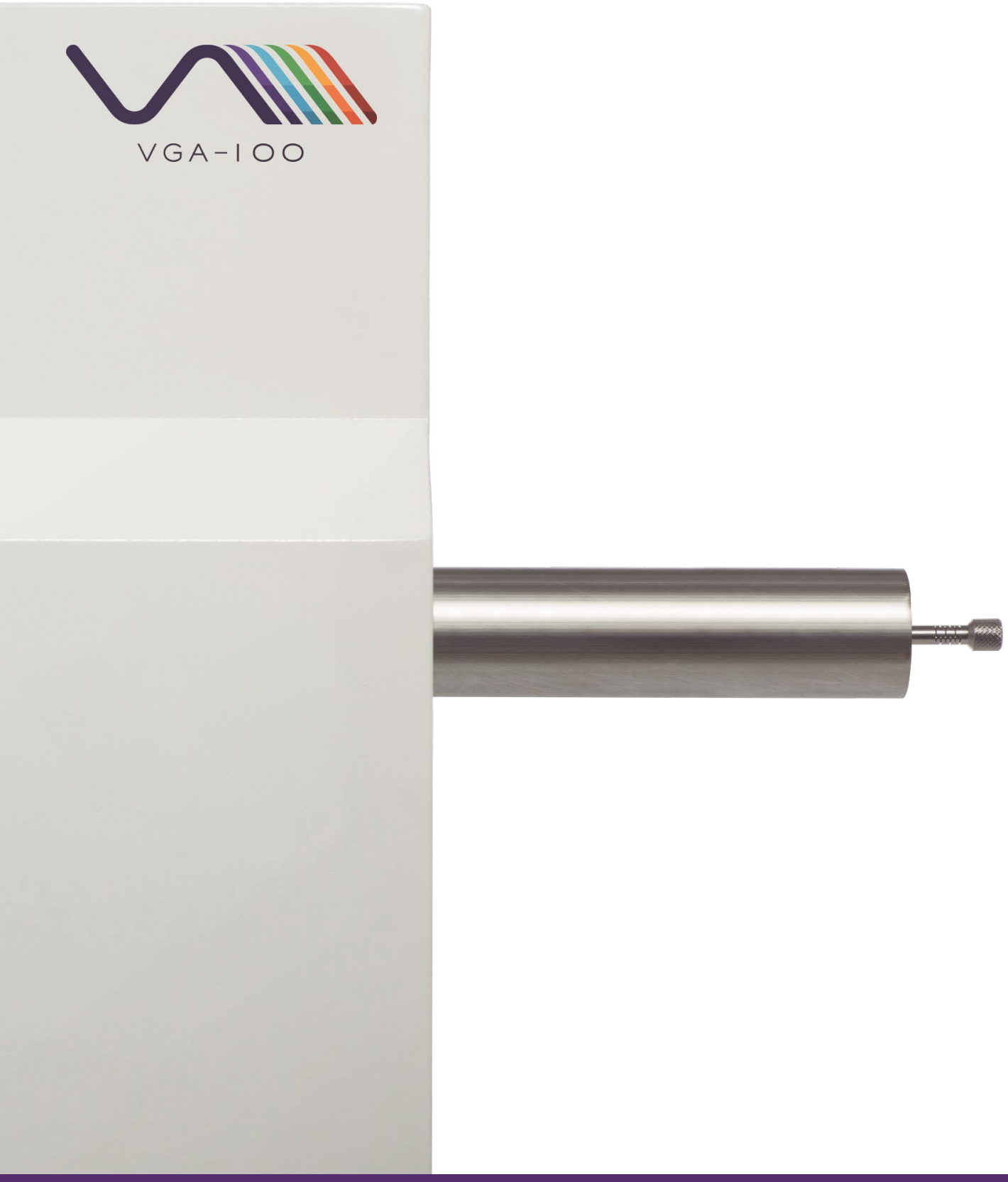
VGA-100

GAS CHROMATOGRAPHY DETECTOR

VUV ANALYTICS

CHROMATOGRAPHIC SPECIALTIES INC.
www.chromspec.com

1-800-267-8103 • sales@chromspec.com • tech@chromspec.com



" New directions in science are launched by new tools much more often than by new concepts."

Meet the alternative.

GAS CHROMATOGRAPHY DETECTOR

FREEMAN DYSON

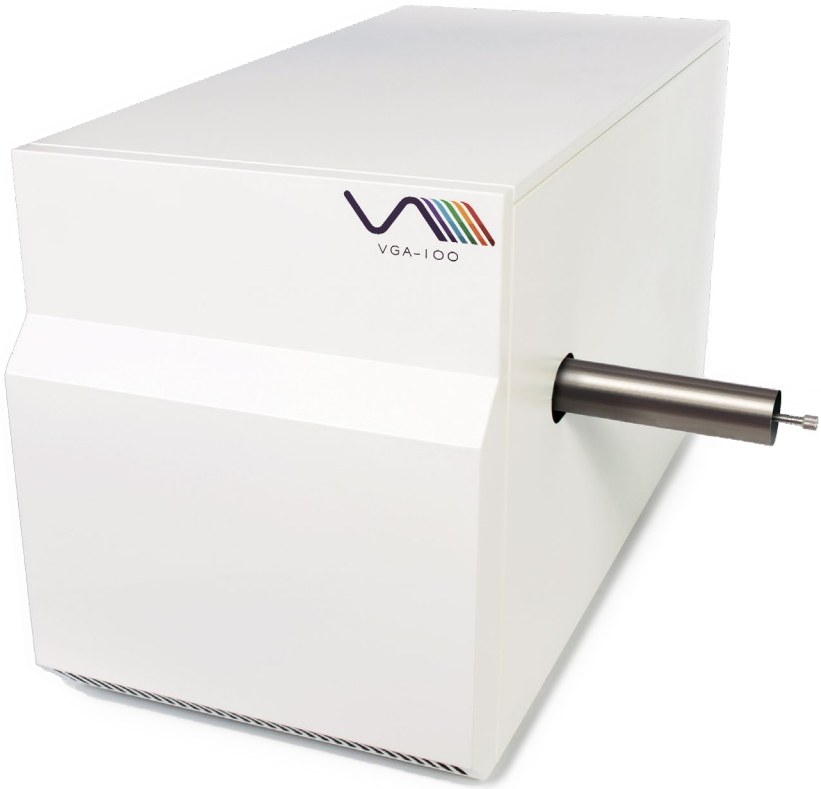
Theoretical Physicist & Mathematician
Professor Emeritus, Princeton University

Gas Chromatography detection in a whole new light

All gas phase molecules absorb strongly in the vacuum ultraviolet region, yet application of VUV absorption technology to analytical detection and measurement has not been addressed...until now.

Our patented and proprietary technologies enable the most exciting advancement in GC detection in decades, by making the unique properties of the vacuum ultraviolet region available to the chromatographer for the first time.

The VGA-100 is a universal mass-sensitive gas chromatography detector which provides both qualitative and quantitative data. The strong absorption of gas phase molecules in the VUV provide excellent sensitivity, and the compound-specific absorption spectra provide unparalleled selectivity.



"The VUV detector is a powerful new tool in the GC toolbox."

Everything you need in one GC detector

Universal and selective detector with sensitive linear response for accurate quantitation

Unambiguous compound identification and quantitation, including isomers

Fast detector response

Excellent temporal resolution

First-principal technique drastically reduces calibration issues

No ionization means minimal sample degradation

Easy to operate and maintain, no vacuum pumps required

Resolve co-eluting analytes and quit worrying about trying to achieve baseline resolved chromatography

KEVIN A. SCHUG, Ph.D.

Associate Professor & Shimadzu
Distinguished Professor of Analytical Chemistry
The University of Texas at Arlington

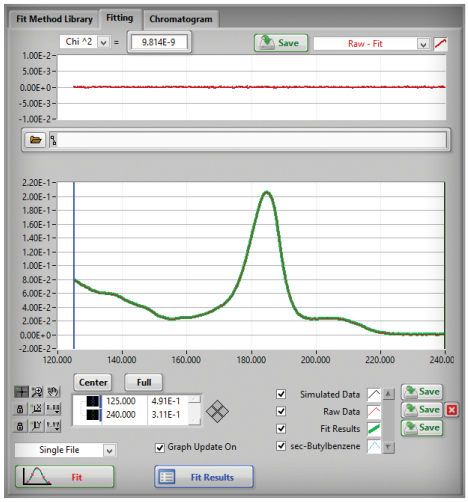
Discover the benefits of VUV

Absorption spectroscopy is a well-understood analytical detection technique offering a wide range of uses. Measured wavelength ranges from the ultraviolet through the infrared are commonly used for gas and solution phase applications.

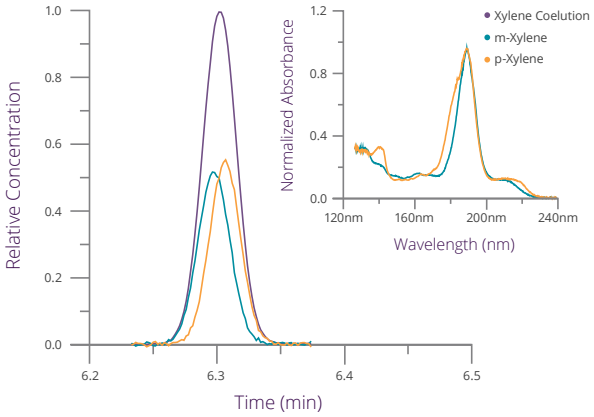
For the first time, VUV Analytics has extended the usefulness of absorption spectroscopy into the vacuum ultraviolet region. A region which was previously limited to synchrotrons, capable of overcoming the environmental challenges.

Most gas phase molecules exhibit strong and unique absorption spectra in the VUV region, including many isomers. The measured spectra can be matched against an existing compound specific absorption cross section library to rapidly identify the compounds. This fitting routine also provides the ability to deconvolve co-eluting peaks, providing a unique orthogonal separation approach.

Automated Spectral Fitting Engine

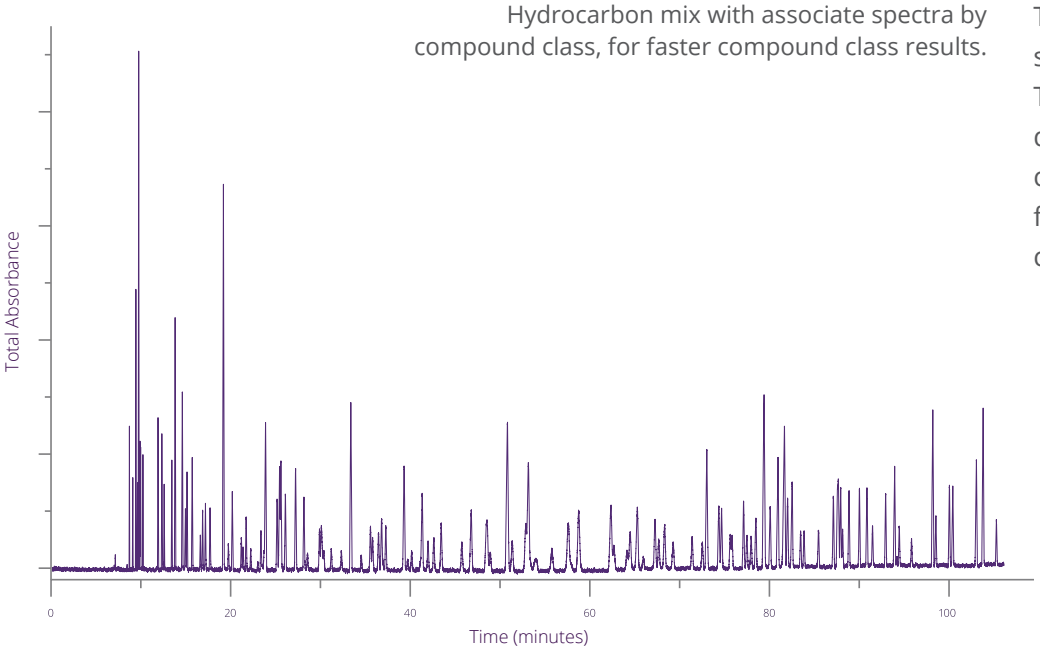


Xylene Isomer Separation

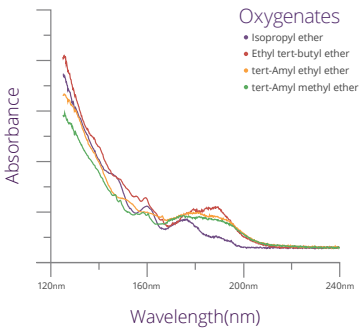


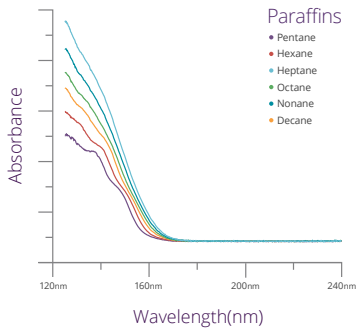
"An amazingly **simple** concept extended into a **powerful** spectral region."

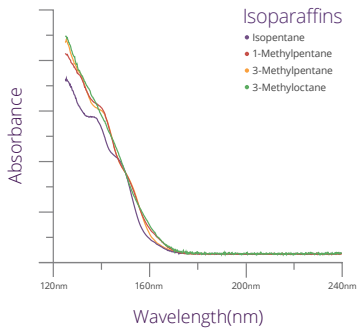
Hydrocarbon mix with associate spectra by compound class, for faster compound class results.

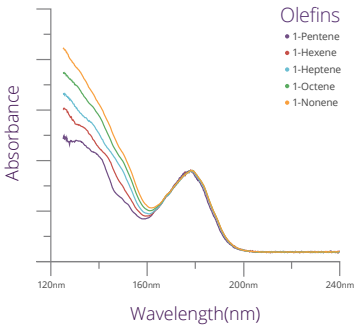


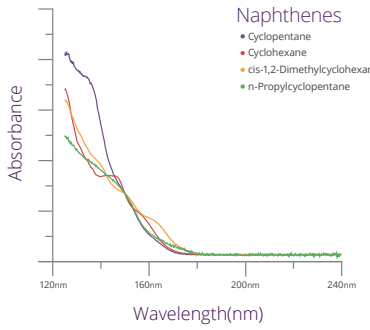
The VGA-100 significantly simplifies PIONA analysis. The VUV absorption spectra demonstrate obvious class similarities, allowing for simplified compound class separation.

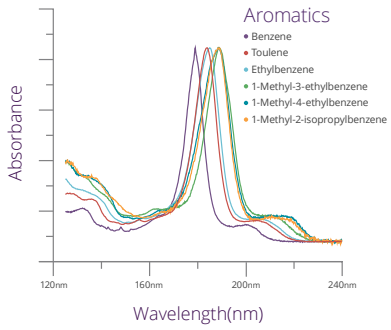








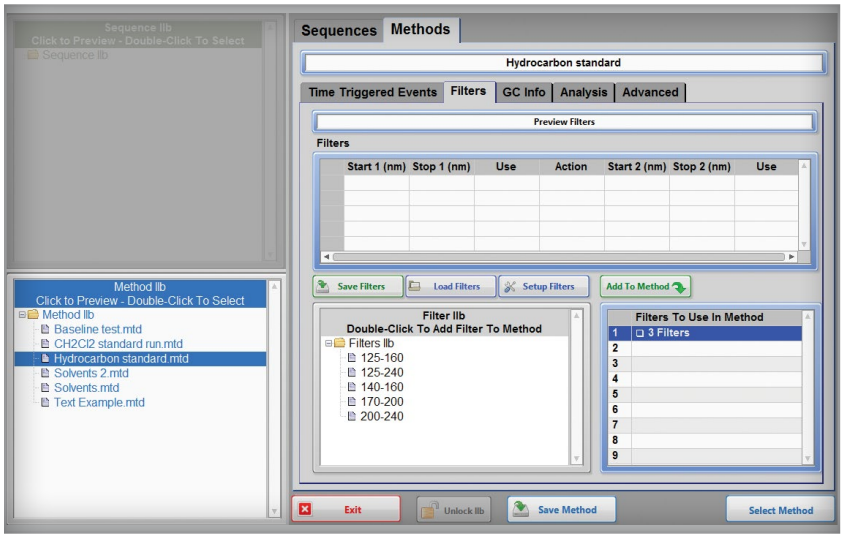




TIM HOSSAIN, Ph.D.

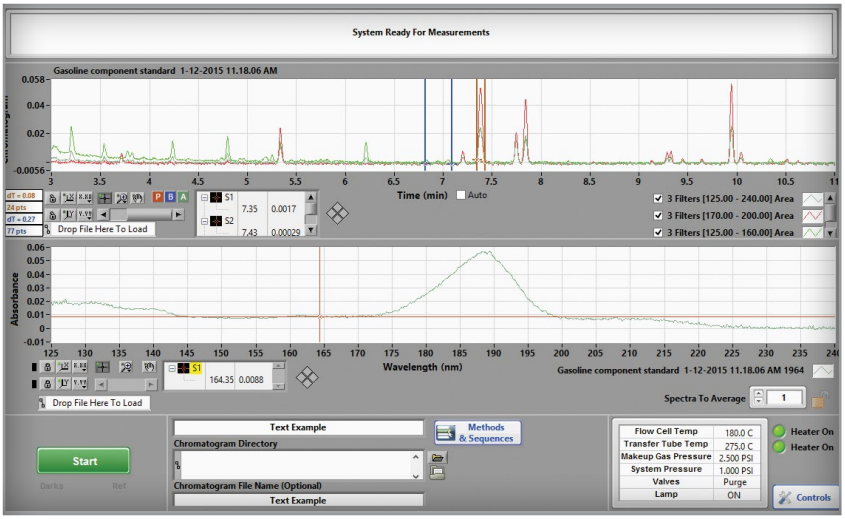
Chief Scientist
Cerium Laboratories

Easy to set up, easy to use



User-Defined Methods

The VGA-100 comes with easy-to-understand, yet powerful analysis tools. The instrument has all of the expected and useful operating tools. The user-defined methods can be reduced to one-button operation with connection to the GC through the START-STOP trigger.

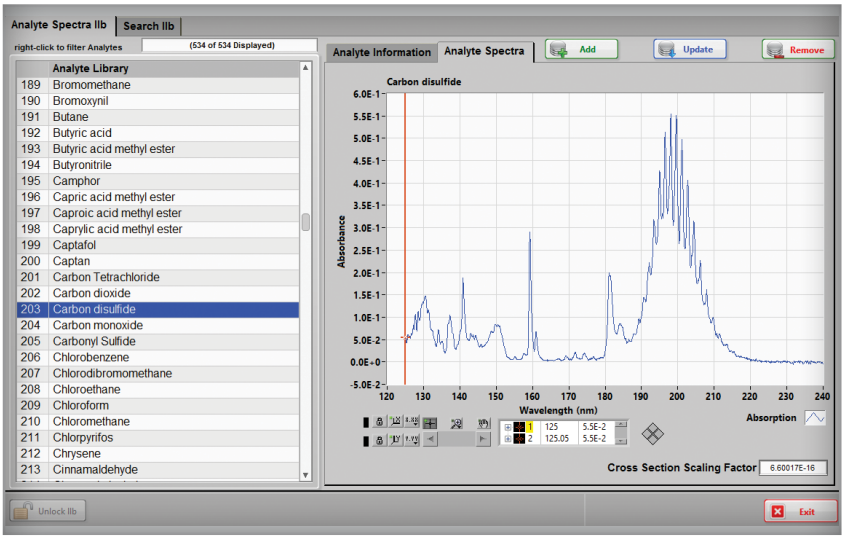


Runtime Analysis

The operator is able to view the measured absorption and the Total and Extracted Absorption Chromatograms during data collection. The measured data is easily output into most common data formats.

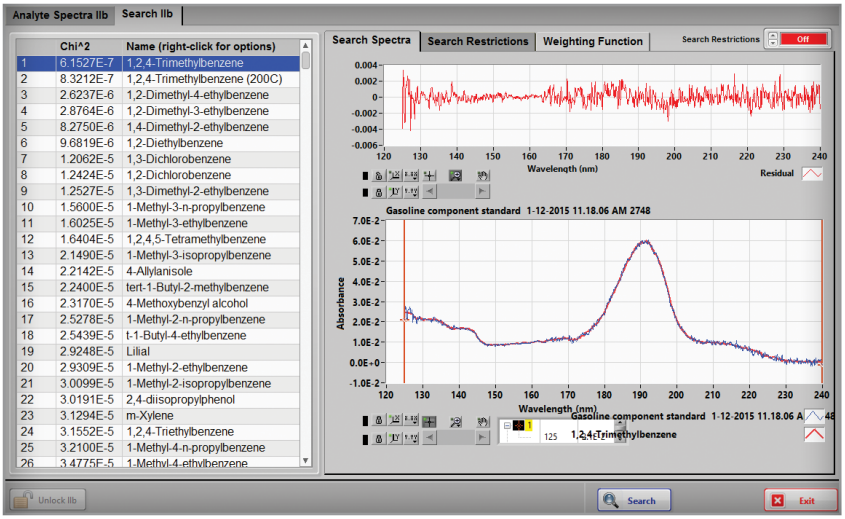
"The most **disruptive** GC product this year."

Powerful and easy-to-understand analysis tools



User-Friendly Compound Library

The VGA-100 is able to uniquely identify compounds, including most isomers. The library search algorithm provides correct and unambiguous identification of your compound. To further simplify your analysis and decision making, the only competing solutions are similar class compounds.



Predictable and Linear Responses

The VGA-100 uses a first-principal measurement technique which provides an easily predictable linear response. Compound class absorptions not only look similar, but also have very similar molar absorptivities which can further reduce calibration complexity.

JAMES HARYNUK, Ph.D

Associate Professor
The University of Alberta

Powerful spectroscopy, functional simplicity, robust instrumentation

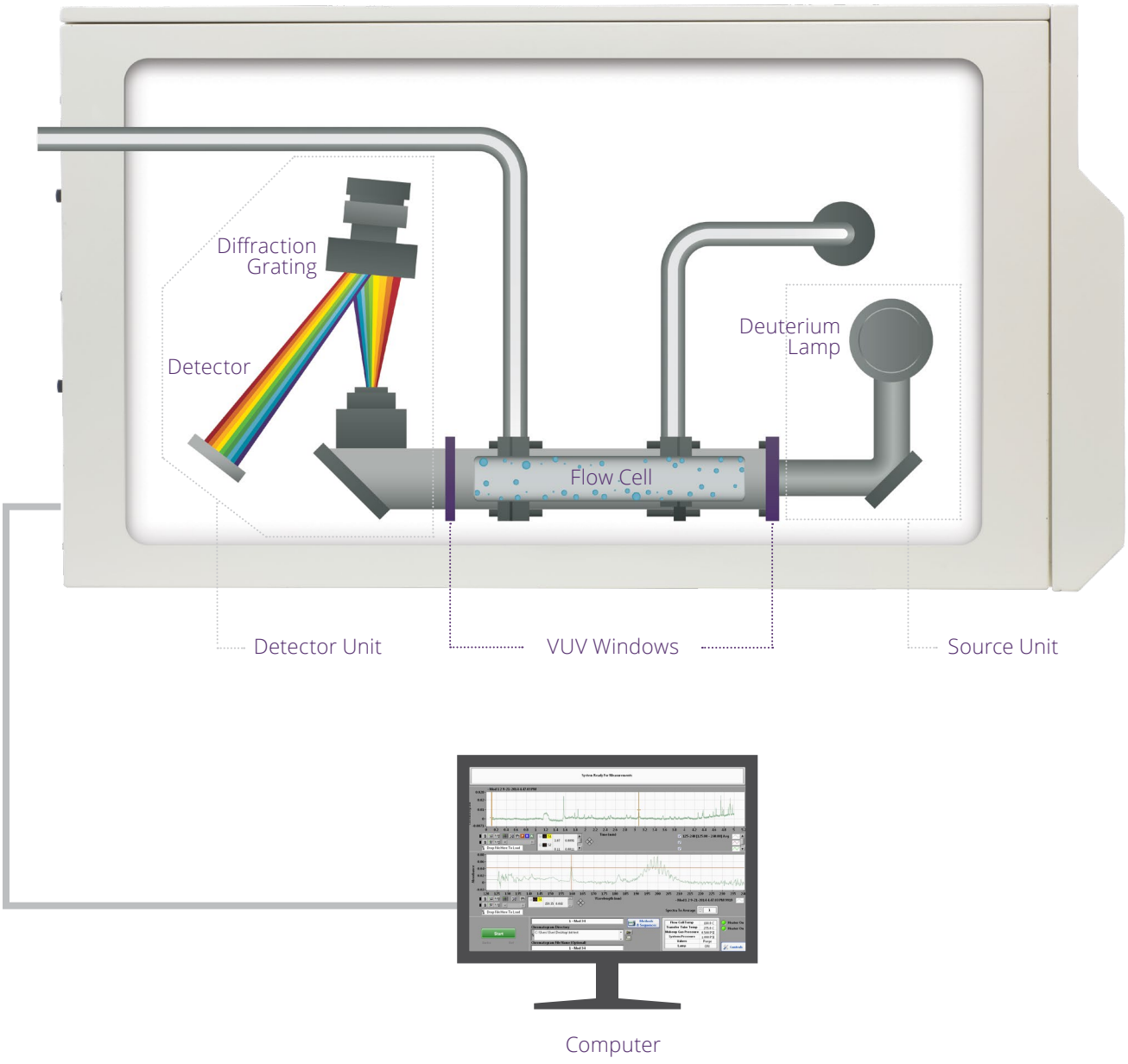
The VGA-100 rapidly acquires full absorption spectra from 120nm to 240nm with up to 100Hz sampling rates. This data is integrated across the measured wavelengths and presented as a Total Absorption Chromatogram. Extracted Absorption Chromatograms can be simultaneously generated using select integration regions.

All spectral data are continuously stored, allowing these “spectral filters” to be applied post-processing. The response factors from the extracted absorption regions can be used to suppress background contributions from certain compound classes, improving the response specificity for the analytes of interest.

The VGA-100 can be used with all popular laboratory gas chromatographs using the GC’s existing mass spectrometer transfer line port. The instrument is compatible with all commonly used GC carrier gases (H2, He, and N2) and the detector’s transfer line and flow cell can be temperature controlled up to 300C. The high sampling rate and controlled use of a transparent make-up gas, maintains temporal resolution of even the narrowest chromatography peaks.

The detector requires minimal facilities and no routine maintenance. There is no vacuum pump to maintain or ion source to clean. A small volume of purge gas is the only system requirement. The detector has limited moving parts and uses a long-life, user replaceable deuterium lamp resulting in excellent reliability and remarkably low cost of ownership.

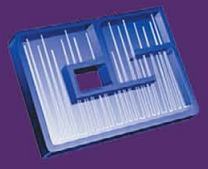
“ Eliminates ionization inefficiencies that are encountered in mass spectrometry analysis.”



MARK R. EMMETT, PH.D.

Professor
The University of Texas Medical Branch Galveston
UTMB Cancer Research Center

A BRIGHT FUTURE



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