



MAKING A **MATERIAL** DIFFERENCE

# Veeco R&D System

## **GENxplor**<sup>1</sup>

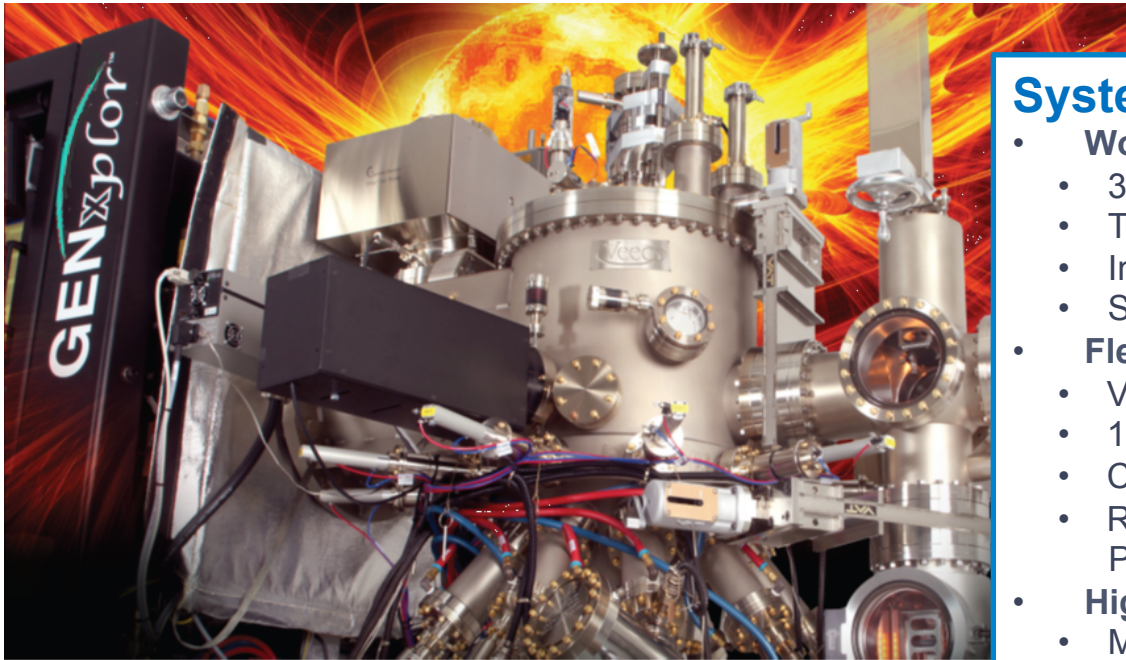
Industry's Most Successful MBE  
System for the Compound  
Semiconductor R&D Market



# GENxplor R&D MBE System

- The innovative design of the GENxplor MBE system enables R&D customers to advance beyond average thin film deposition while providing at least \$100,00 in first year.
- Best in class reliability with \$0 in unscheduled maintenance cost over a 3-year average
- State-of-the-art software and controls enable users to focus on what is most important – their research
- Features such as the Nova™ ultra-high temperature heater (>1850°C), the Gazelle™ high growth-rate nitrogen plasma source (up to 10μm/hr), advanced dual e-beam sources, and Veeco-CNT atomic layer deposition (ALD) integration opens up new, unexplored growth research

# CS Industry Award Winning GENxplor<sup>®</sup>



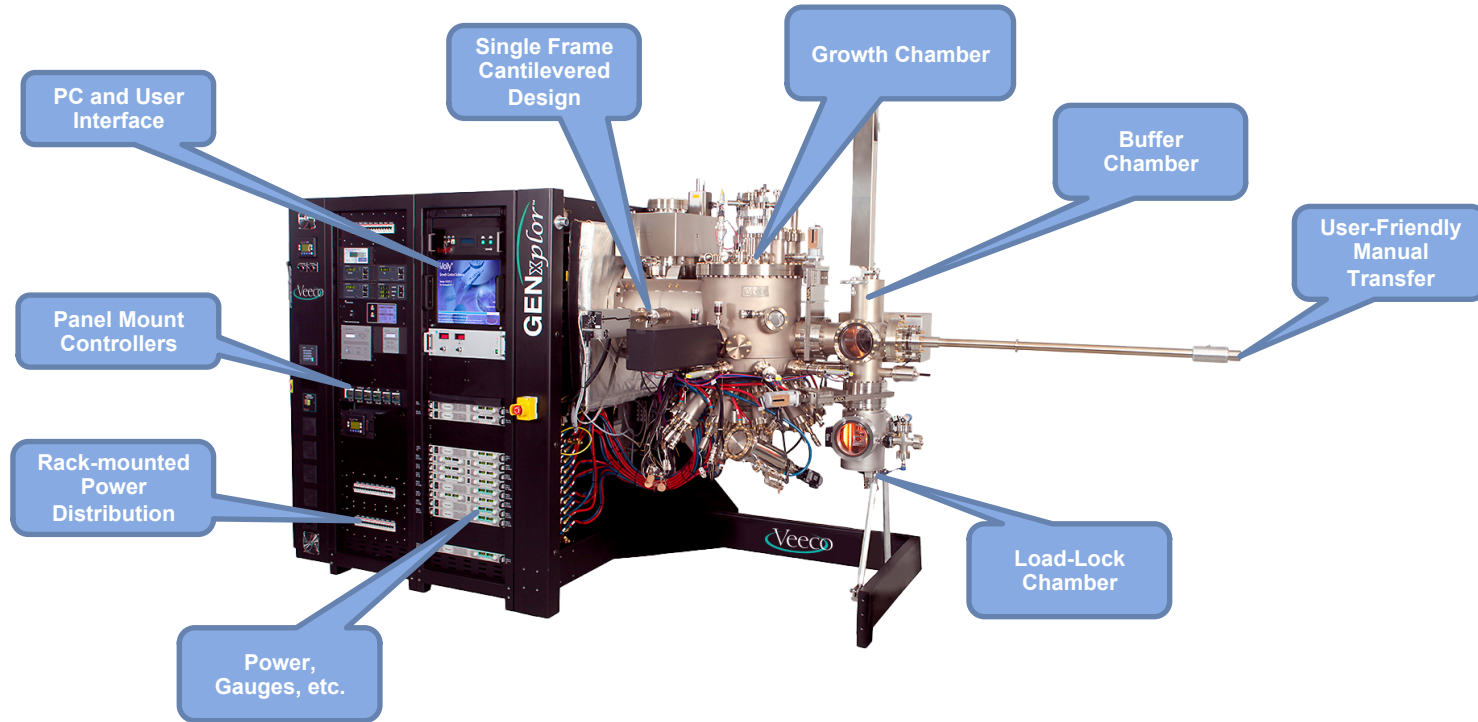
## GENxplor

### System Features:

- **World-Class Design**
  - 3" wafer Growth Chamber
  - Three-stage Manual Transfer
  - Integrated Electronics
  - Smallest Footprint
- **Flexible Platform**
  - Vertical Reactor
  - 10 Source Ports
  - Configurable Base Flange
  - Retractable/Differentially Pumped Source Compatible
- **High Reliability**
  - Molly<sup>®</sup> Software
  - World-Leading Components
  - Veeco Service and Support

CS Industry  
awards 2014  
**-WINNER-**  
Compound  
Semiconductor  
Manufacturing

# GENxplor Layout

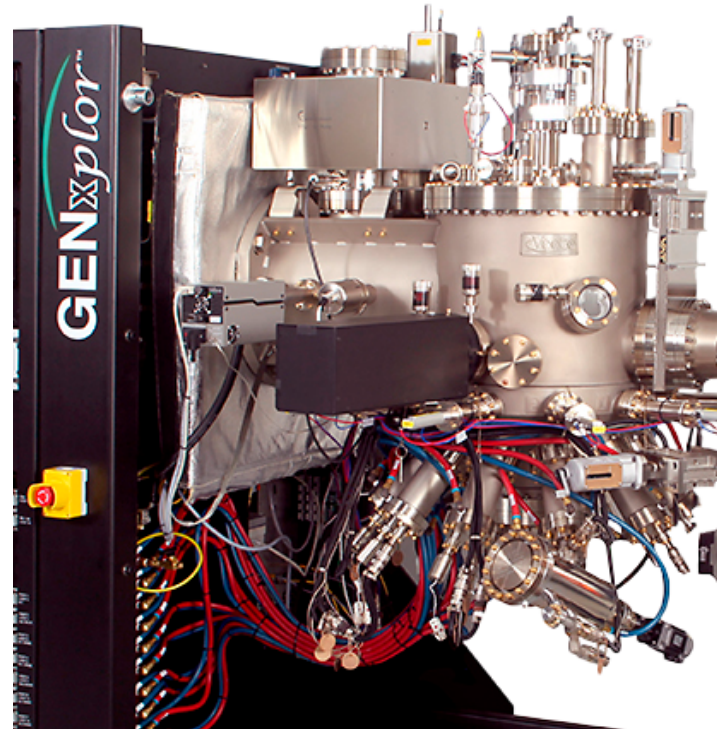


Vacuum Hardware and Electronics Combined into a Single Frame

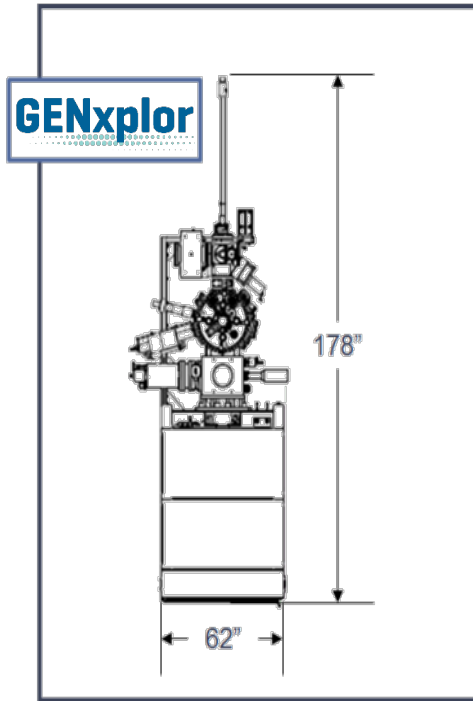


# GENxplor Growth Chamber

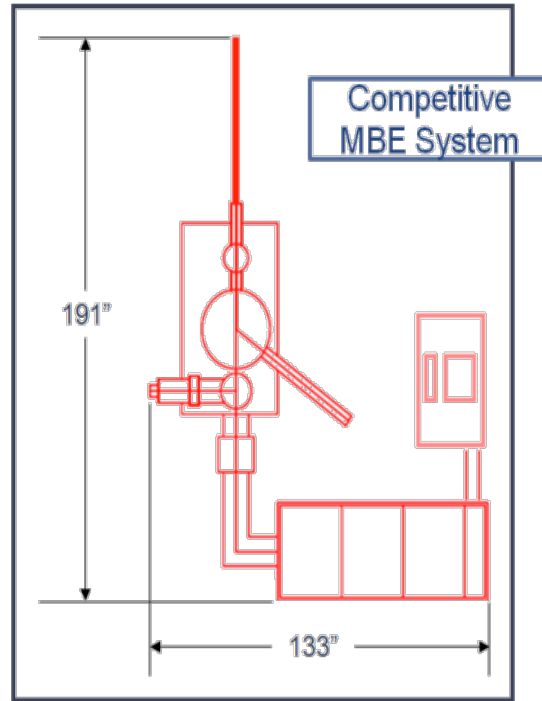
- 10 source ports
- Configurable base flange
  - Viewports, in-situ analysis, e-beam
- 3" wafer system with substrate heating up to 1850°C
- Two high conductance pump ports
- Retractable source compatible



# Up to 40% Smaller Footprint



~75 square feet



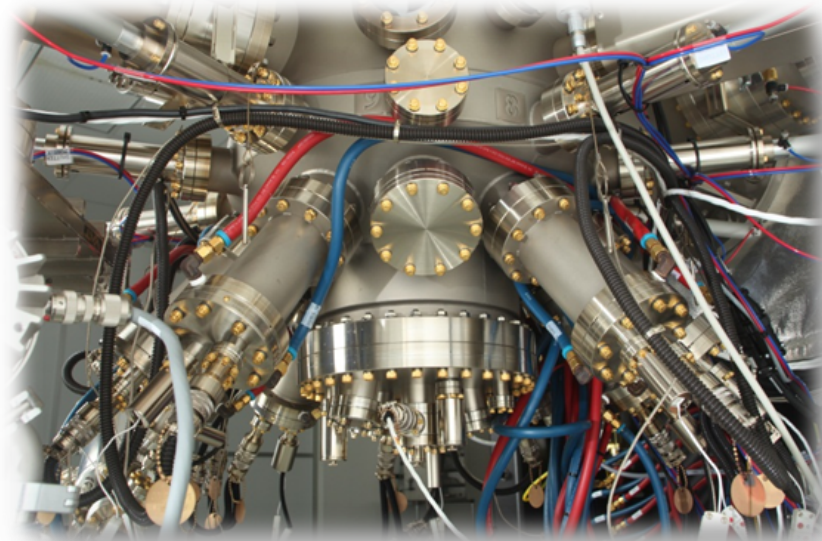
~175 square feet

**~\$40,000 upfront facility savings (class 1000 cleanroom)**

# Convenient Access to Effusion Cells

## Growth module advantages

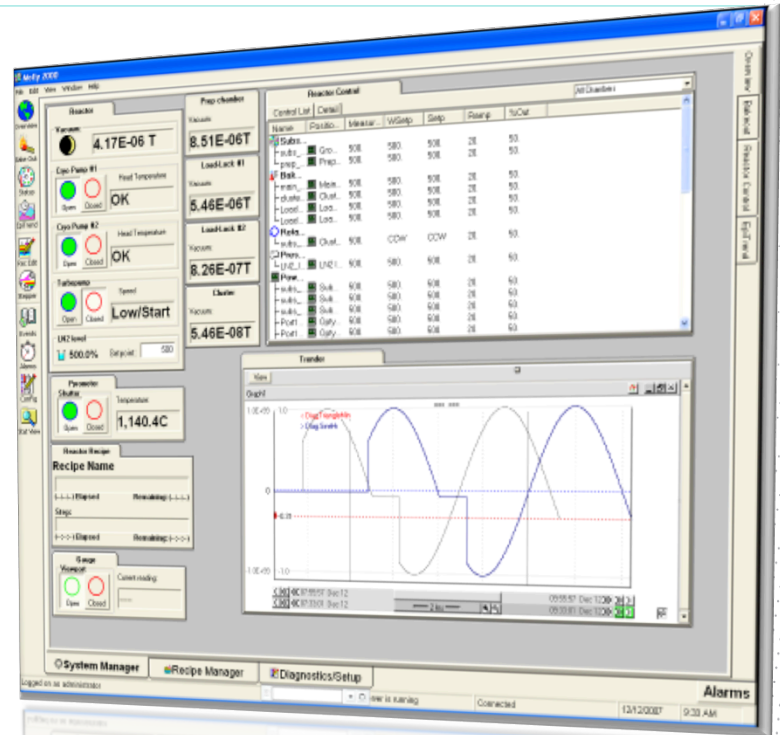
- Source to substrate distance is 8.75" at 40°
- Optimal full or half cryopanel
- Thermal and optical source isolation
- Replaceable isolation fins for easy material change (half panel)



**Annual operational cost savings of >\$20,000 with half cryopanel.**

# GENxplor<sup>1</sup> Electronics and Controls

- Powerful Molly Software
  - Integrated into control rack
    - All controls easily accessible
    - Reduced footprint
- Molly MBE integration
  - ECS1 software integrates the system, allows 24x7 non-predictive monitoring, and offers additional I/O ports for future expansion
- Commercially available Lambda DC power supplies





- **VEECO TO SHIP FIRST GENXPLOR R&D MBE SYSTEM TO THE UNIVERSITY OF OKLAHOMA**  
PLAINVIEW, N.Y.--([BUSINESS WIRE](#))-- Veeco Instruments Inc. (NAS:[VEECO](#)) announced today that the University of Oklahoma (OU) will receive the first shipment of Veeco's new GENxplor™ R&D Molecular Beam Epitaxy (MBE) System early in the fourth quarter.
- **VEECO'S GENXPLOR R&D MBE SYSTEMS ACQUIRED BY UNIVERSITY OF NOTTINGHAM FOR OPTOELECTRONIC RESEARCH**  
Veeco Instruments Inc. announced today that the University of Nottingham, United Kingdom, purchased two GENxplor™ R&D Molecular Beam Epitaxy (MBE) Systems for its School of Physics and Astronomy. The systems will enable the growth of high quality, large area layers of graphene and boron nitride for advanced electronic and optoelectronic applications.
- **MCGILL ORDERS VEECO GENXPLOR R&D MBE SYSTEM FOR NITRIDE LIGHT-EMITTING AND POWER ELECTRONIC DEVICES**  
Epitaxial deposition and process equipment maker Veeco Instruments Inc of Plainview, NY, USA says that McGill University in Montréal, Québec, Canada has ordered a multi-chamber GENxplor R&D molecular beam epitaxy (MBE) system for its Electrical and Computer Engineering Department, as part of a research grant from Canada's Foundation for Innovation.  
GENxplor Highlighted on Cover of Semiconductor Today Magazine Dec 2013/Jan 2014
- **TUFTS UNIVERSITY SELECTS VEECO MBE SYSTEMS TO DEVELOP SEMICONDUCTOR DEVICES FOR SOLAR AND ELECTRONIC APPLICATIONS** 09/08/2014  
Plainview, N.Y., September 08, 2014 -- Veeco Instruments Inc. (Nasdaq: VECO) announced today that Tufts University in Medford, Massachusetts has ordered two GENxplor™ R&D Molecular Beam Epitaxy (MBE) Systems for cutting-edge compound semiconductor research.
- **VEECO RECEIVES MILESTONE ORDER FOR ITS INDUSTRY LEADING MBE R&D SYSTEM** *Technion –Israel Institute of Technology Purchases the 25<sup>th</sup> GENxplor R&D MBE System*  
Plainview, N.Y., September 1, 2016 –Veeco Instruments Inc. (Nasdaq: VECO) announced today that it has received an order to deliver the 25th GENxplor™ R&D Molecular Beam Epitaxy (MBE) System to Technion, the Israel Institute of Technology based in Haifa, Israel. Introduced in August 2013, the GENxplor system is the number one selling R&D MBE system to universities and research institutions.
- **UD'S STEPHANIE LAW WINS PRESIDENTIAL AWARD**  
Stephanie Law, Clare Boothe Luce Assistant Professor in Materials Science and Engineering at [University of Delaware](#), was honored with the Presidential Early Career Award for Scientists and Engineers (PECASE). Law was recognized for her research in molecular beam epitaxy—or, in her words, “3D printing at the nanoscale”—and leadership in the field of topological insulators.



The University of  
Nottingham



# Feature Summary



## GENxplor

### System Features:

- **World-Class Design**
  - 3" wafer Growth Chamber
  - Three-stage Manual Transfer
  - Integrated Electronics
  - Smallest Footprint
- **Flexible Platform**
  - Vertical Reactor
  - 10 Source Ports
  - Configurable Base Flange
  - Retractable/Differentially Pumped Source Compatible
- **High Reliability**
  - Molly® Software
  - World-Leading Components
  - Veeco Service and Support



MAKING A *MATERIAL* DIFFERENCE