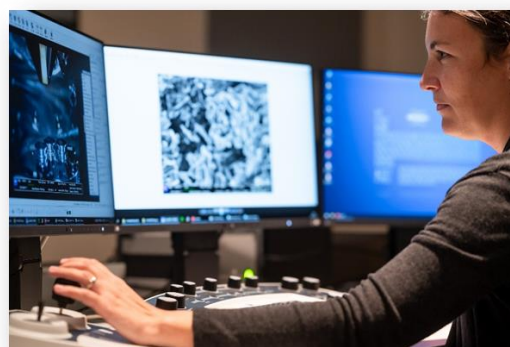


Dear Researchers,

In recent years, the university made unprecedented investments in “Core facility instrumentation” for upgrading the infrastructure for research support at BGU:

Major equipment that was purchased in the last 2 years:

Cryogenic Scanning Electron Microscopy (Gemini 300, ZEISS cryo-SEM, and LEICA sample preparation equipment) state-of-the-art imaging technique, which enables high-resolution imaging of fully hydrated frozen samples, at the nanometer scale and low acceleration voltages (installed and is up and running). For more details (Dr. Raquel Maria raquelm@bgu.ac.il, Dr. Einat Nativ-Roth einatna@bgu.ac.il)



Spinning Disk (SD) confocal platform Marians CSU-W System (3i), for live-cell imaging at high-resolution and high frame rate (installed and is up and running).

For more details :Dr. Uzi Hadad uzihad@bgu.ac.il, Dr. Anat Shahr anshahar@bgu.ac.il

High-Resolution Liquid Chromatography-Mass Spectrometry (LCMS) Systems- (2 systems: Thermo Fisher Scientific Q-Exactive PLUS, Exploris 240 both with Waters UPLC). The Metabolomics Center will give research support for lipids and small molecules analysis (estimated date for installation- January 2022).

For more details: Dr. Efrat Forti forti@bgu.ac.il

Empyrean III (panalytical) X-ray diffractometer for materials analysis – with the ability to measure various sample types - from powders to thin films, from nanomaterials to solid objects - on a single instrument (estimated date for installation- December 2021). The existing Empyrean I will be optimized for powder diffraction and in-situ experiments. For more details: Dr. Lonia Friedlander friedlal@bgu.ac.il



X-ray photoelectron spectroscopy system (XPS, Escalab, ThermoFisher Scientific) for surface analysis equipped with Dual anode, UV photoelectron spectroscopy (UPS), dual-mode ion source that enables depth profiling analysis and surface cleaning of both soft and hard materials (estimated date for installation- December 2021). For more details: Dr. Natalie Froumin nfrum@bgu.ac.il

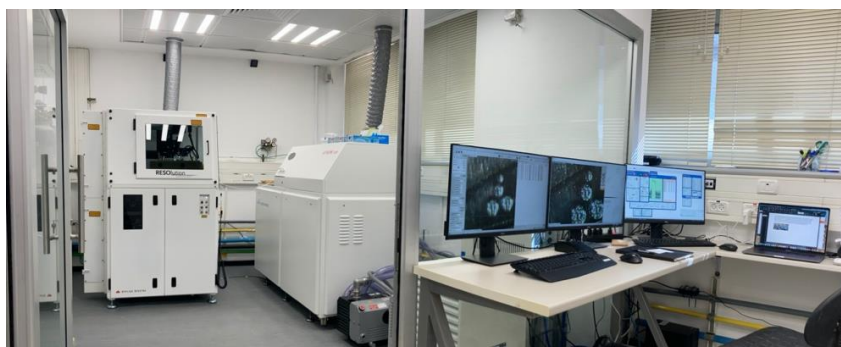
Thermo Scientific Spectra 200 (S)TEM for Materials Research. High-throughput, aberration(probe)-corrected, (scanning) transmission electron microscope for materials science applications (estimated date for installation- April 2022).

For more details: Dr. Vladimir Ezersky
ezersky@bgu.ac.il, Dr. Alex Upcher
upcher@bgu.ac.il

Thermo Scientific Glacios™ Cryo Transmission Electron Microscope (Cryo-TEM) for Life Sciences. Cryo-EM single particle analysis (SPA) can resolve the three-dimensional structure of proteins, protein complexes, and other biological macromolecules at atomic resolution (estimated date for installation- July 2022). For more details: Dr. Ran Zalk ranzalk@gmail.com



Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) RESOLUTION-SE 193 nm excimer laser ablation system, coupled with Nu Instruments AttoM high-resolution single-collector ICP-MS. A technique that uses a powerful nanosecond-pulsed laser beam that enables direct micro-scale sampling to provide high precision analysis of trace elements and isotopes in solids. Mostly used for geochronology and trace element geochemistry in minerals. For more details (Dr. Itai Haviv haviv@bgu.ac.il, Dr. Bar Elisha brelisha@bgu.ac.il)



Deep Silicon etching (DSiE)- Oxford Plasma Pro 100 Estrelas - plasma etch tool with semi-automatic loading system. The tool is primarily configured to carry out etching of silicon, with size up to 100mm (4'') diameter. A precise flow of one or more process gases is supplied to the chamber from a gas pod, then the tool uses RF power to create a plasma inside the chamber. The reactive ionic species generated within the plasma are guided onto the front surface of the wafers (already installed).

For more details: Dr. Erez Golan golaner@bgu.ac.il , Nadav Aharon nadavah@bgu.ac.il



Deep Reactive-Ion Etching (DRIE)- Oxford Plasma Pro 100 Cobra - modular plasma processing etch tool with semiautomatic loading system. The PlasmaPro®100 Cobra can process a wide range of wafer sizes, from small wafer pieces up to 100 mm (4") diameter. A precise flow of one or more process gases is supplied to the chamber from a gas pod, then the tool uses RF power to create a plasma inside the process chamber. The reactive ionic species generated within the plasma are guided onto the front surface of the wafers (already installed).

For more details: Dr. Erez Golan golaner@bgu.ac.il
, Nadav Aharon nadavah@bgu.ac.il



Electron Beam Lithography - Raith EBPG 5150

- a high-performance electron beam lithography system with 50kV / 100 kV write modes and high-resolution lithography below 5 nm. The EBPG offers the unique combination of a powerful and stable beam with up to 350 nA beam current and fully automated calibration and alignment procedures. In conjunction with BEAMER software (GenISys GmbH), the system provides advanced fracturing capabilities and very short writing times (already installed).

For more details: Dr. Erez Golan golaner@bgu.ac.il
, Dr. Arsani Solodar asisolo@bgu.ac.il



Desktop Scanning Electron Microscope (Tescan VEGA4LMS + Oxford 15mm EDS AztekOne) -

Features an integrated analytical platform that combines SEM imaging and live elemental composition analysis. This analytical SEM is ideal for routine materials characterization, research, quality control and failure analysis. The SEM installation will be finished by November 2021.

For more details: Dr. Erez Golan golaner@bgu.ac.il



Film deposition system (Oxford PlasmaPro100 ICPCVD) - Offers deposition technology with good uniformity, high rate of films deposition, excellent control over film properties, and minimal film contamination and radiation damage. The system includes both RF and ICP sources and can be used to deposit a variety of materials, including SiO₂, SiN_x and DLC.

For more details: Dr. Erez Golan golaner@bgu.ac.il



Atomic Layer Deposition system (Arradiance GEMSTAR-XT-S) - The only true benchtop ALD system, which offers 300 °C ALD processing through the full range of substrates. Can be easily used for substrates up to 200nm and with a wide range of materials, including very low-pressure materials. Planned to be installed by February 2022.

For more details: Dr Erez Golan golaner@bgu.ac.il



Physical Vapor Deposition system (AJA Multi-technique deposition system) - Has a flexible configuration which includes e-beam and thermal evaporation and sputtering options. It offers a wide range of deposition process capabilities including co-deposition of complex alloys, magnetic layers and structures deposition, substrate temperature control and variable angle deposition.

For more details: Dr Erez Golan golaner@bgu.ac.il



Researchers who would like to suggest the setting-up / upgrade of additional core facility labs are welcome to contact Dr. Efrat Forti, Head of Research Support Laboratories (forti@bgu.ac.il)