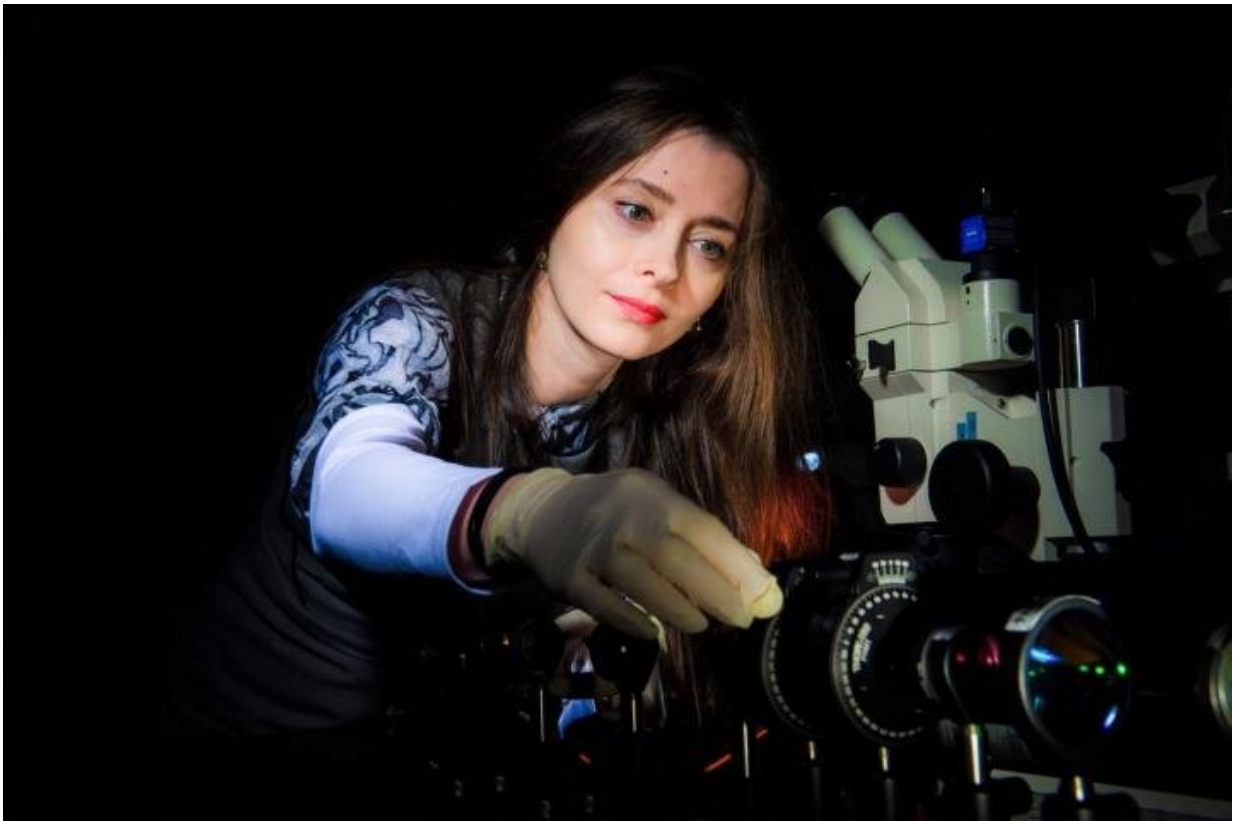


Researchers develop new chip for superior forensic blood residue detection

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The BGU microfluidic chip not only increases the chemiluminescent intensity severalfold, but also prolongs the glow time of luminol, enabling the detection of much smaller blood samples in a forensic scene. The chip device was developed by BGU Prof. Alina Karabchevsky, (pictured here) head of BGU's Light-on-a-Chip Group, a member of the BGU Unit of Electro-Optical Engineering and the Ilse Katz Institute for Nanoscale Science and Technology. Credit: Dani Machlis, Ben-Gurion U.

Ben-Gurion University of the Negev (BGU) researchers have developed a new chip device that offers superior identification of miniscule blood residues for forensic applications.

Criminologists use luminol to identify microscopic blood drops, as well as low hydrogen peroxide concentrations, proteins and DNA. These are all invisible to the [naked eye](#) but become visible through a chemical reaction known as "chemiluminescence." Detecting biological residues using this method is cost effective and advantageous since the detected signal does not depend on an external light source.

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The innovation combines the use of luminol with gold or silver nanospheres in a specially designed microfluidic device that increases the detection limit by amplifying chemiluminescent light emission and facilitating imaging in the chip.

"Our findings open the door to new integrated microfluidic chips," said Prof. Karabchevsky. "Practical implementation of this discovered effect will include further superior chemiluminescence-based sensors for [forensic science](#), research in biology and chemistry, and no-source opto-chemical lasers."

"Identifying trace quantities of blood can increase the efficiency and accuracy of a forensic investigation of a crime scene but requires more sensitive detectors than those that are currently available," says Netta

Cohen, chief executive officer of BGN Technologies. "We are looking for partners to further develop this promising patented invention."

Provided by American Associates, Ben-Gurion University of the Negev

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