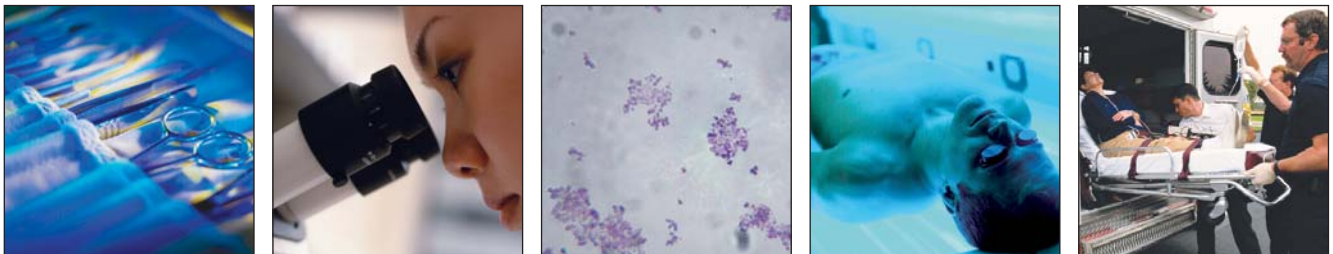




# versatile microdischarge devices

for use in **biomedical applications**



This suite of seven patented and patent-pending microdischarge technologies offers robust, small, efficient, and versatile light-emitting devices with simple and low-cost manufacture.

Companies can **license and/or jointly develop these microdischarge device technologies** to use in various biomedical applications.

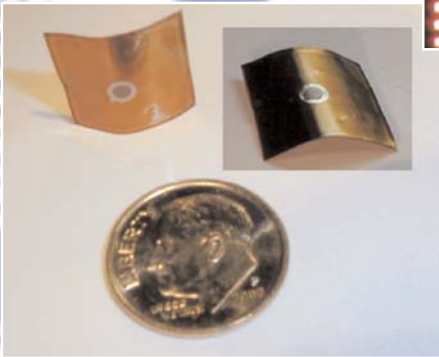
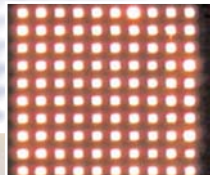
**Sterilization:** Devices made from these technologies emit light in the VUV, UV, and visible range from a discharge to kill germs for instrument or surface disinfection. The small size and low cost of the devices make them ideal for applications where portability is required, such as cleaning wounds in the field or disinfecting instruments in clinics and hospitals.

**Phototherapy:** These technologies provide microdischarge devices and arrays that are inexpensive and easy to manufacture in flexible sheets. Flexibility is advantageous in phototherapy applications to provide for more efficient delivery of the light to the area under treatment.

**Flow cytometry:** These microdischarge technologies are ideal for illuminating biological specimens to successfully perform flow cytometry, where inexpensive, disposable light source arrays would be desirable.

**Polymer curing:** Polymers used in dental and other applications can be cured into solid form using devices made with these technologies, whose small size, low cost, and flexibility are key advantages.

*These microdischarge technologies can be used in many application areas outside of the biomedical field, including displays, lighting systems, sensors, toxic gas remediation, lasers, gas chromatography, and fiber optics.*





## *t*he available technologies

The University of Illinois at Urbana–Champaign is offering a suite of microdischarge technologies for license and/or joint development by qualified companies.

Microdischarge device technology involves fabricating miniature plasmas (i.e., microballs of ionized gas) that exhibit a unique collection of useful properties. The University's technologies use silicon and standard microelectronics fabrication techniques to produce microdischarge devices that are robust, small, efficient, and versatile at a low cost.

The University's suite of technologies includes the following inventions with biomedical applications:

- **Microdischarge lamp:** This technology uses well-entrenched integrated circuit micro-machining and a single substrate to form an inexpensive device with efficient discharge of resonance radiation and superior properties.
- **Flexible microdischarge device/array:** This technology layers inexpensive materials—copper coil for the cathode, a polyimide thin film for the dielectric, and a thin metallic film for the anode—to mass produce flexible devices and arrays.
- **Multilayer ceramic microdischarge device:** This new microdischarge device uses ceramic materials that can withstand high temperatures and harsh chemical environments, which is ideal for gas chromatography and laser applications.
- **Thin, lightweight microdischarge devices/arrays:** Formed from semiconductor electrodes, this technology offers inexpensive manufacturing, superior performance, greater efficiency, and lower power consumption.

The technologies have been prototyped and tested and are nearly ready for transfer to commercial applications. Some U.S. patents have been issued, and additional U.S. and international patents are pending. The technologies are 100% owned by the University.

## *L*icense these technologies

More details about these technologies and how to license them or partner with the University for joint development are available online under reference T96094 (Microdischarge Devices).

<http://www.otm.uiuc.edu/technology.htm>

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