



versatile microdischarge devices

for use in **displays**



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.

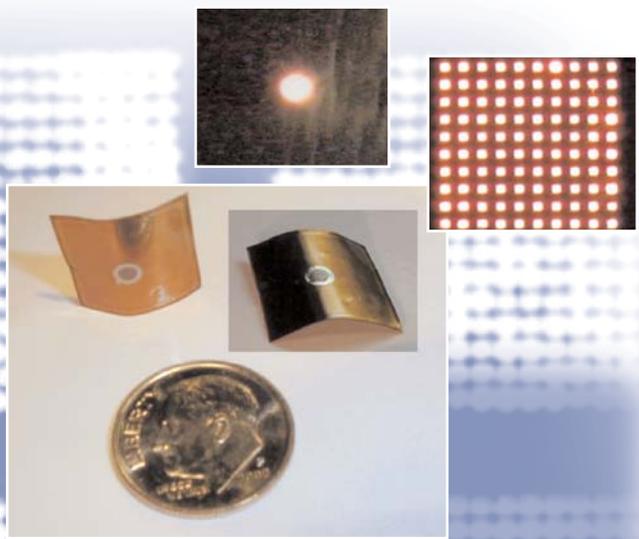
Companies can **license and/or jointly develop these microdischarge device technologies** to use in various display applications.

Personal digital assistants: The small size and low cost of these microdischarge devices make them ideal for applications where portability is required, such as PDAs and other mini-computers.

Micro-displays: These technologies provide microdischarge devices and arrays that are inexpensive, robust, and easy to fabricate or integrate with electronics, allowing manufacturers to reduce the costs (or increase profitability) for their high-resolution, extremely small display products, such as tiny displays mounted on eye-glasses. Pixel sizes of 10 μm or lower can be obtained.

Flat panel displays: Because they can be small and inexpensively manufactured, these microdischarge technologies are ideal for use in flat panel displays such as flat screen televisions, desktop computer monitors, laptop computers, aircraft display panels, and telephones. The high resolution afforded by these devices makes them ideal for use in high-definition television (HDTV), where crisp, cinema-quality pictures are presented on a wide screen.

Flexible displays: These technologies provide microdischarge devices and arrays that are inexpensive and easy to manufacture in flexible sheets. Flexible displays might be used when portability is required or when space and weight constraints exist (e.g., a roll-up laptop computer screen).



These microdischarge technologies can be used in many areas besides displays, including biomedical applications, 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 display 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.
- **Microdischarge lamp and array:** This multilayer microdischarge device has two planar electrodes and uses a silicon substrate, making it easy and inexpensive to produce arrays that work well with gases as well as low vapor pressure materials that require heating.
- **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.
- **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.fuentek.com/technologies/microdischarge.htm>

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*Fuentek is assisting the University of Illinois at
Urbana–Champaign with technology commercialization.*