

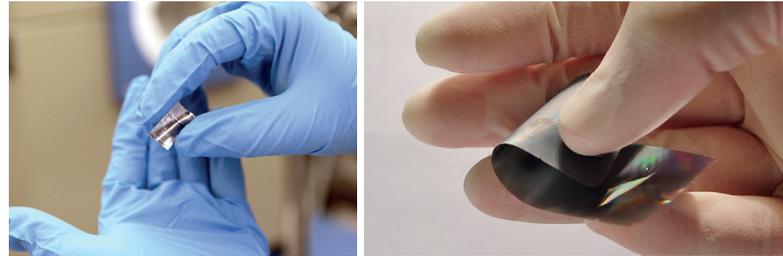
## TECHNOLOGY OPPORTUNITY



# A Platform Technology for Flexible Electronic Devices

*Semiconductors, silicon wafers, gadgets, electronics, transparent electronics*

This technology provides a futuristic approach for the electronics and gadgets industry. It takes on the challenge of manufacturing semiconductor substrates, such as silicon, in a flexible transparent form. We anticipate that this technology will revolutionize the industry of electronics and gadgets by providing entirely modern and futuristic flexible, smart-looking, and transparent devices and products with enhanced performance. All this can be done with even cheaper and low cost manufacturing capabilities using conventionally known standard electronic manufacturing processes such as CMOS.



## Benefits

- ▲ Low cost manufacturing
- ▲ CMOS-compatible process
- ▲ Applicable to monocrystalline silicon (100)
- ▲ Cost saving on wafer usage

## Applications

- ▲ Smart looking gadgets
- ▲ Flexible electronics
- ▲ Ultra-mobile computation
- ▲ Bio-integrated electronics
- ▲ Micro/nano membranes

## Opportunity

This technology is part of KAUST's technology commercialization program that seeks to stimulate development and commercial use of KAUST-developed technologies.

Opportunities exist for joint development, patent licensing, or other mutually beneficial relationships.

## For More Information

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## Technology Details

This technology follows a process that enables the production of flexible and transparent substrates such as mono-crystalline silicon that can be used as a platform for semiconductor printing and wiring in electronic devices. The process is cost-effective and can be made compatible with the conventional CMOS process. It involves various steps of oxidation, etching, implantation, and masking to create vertical channels across the substrate in a controlled manner. Once this has been achieved, anisotropic etching can be done smoothly before peeling off a thin layer of the substrate that can be monitored down to sub-micron levels in thickness. The resulting substrate from this technology has excellent properties of optical transparency, mechanical flexibility and strength.

## Why It Is Better

The only low cost process that is capable of providing electronic substrates. The process is compatible with widely used CMOS process. It provides for effective usage of electronic substrates with excellent high-throughput and effective utilization and recyclability of substrate materials.

## IP Protection

KAUST has issued a patent in Japan and South Korea, and has a pending patent in China, Europe and US for this technology.



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