

# New research could improve efficiency and luminance of TV and smartphone displays

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Your TV and smartphone could be more efficient and luminescent thanks to new research conducted with assistance from Binghamton University, State University at New York.

When it comes time to buy something like a new TV, the casual consumer will be focused on the size of the screen, while more tech-savvy consumers are interested in knowing things like if the display is LCD or OLED. Put simply, these [display](#) technologies determine the quality of the picture on the screen for not just TVs but also for smartphones, computers and tablets. While the market is currently dominated by LCD, both OLED and LCD use what are called [thin-film transistors](#) (TFTs).

"While the research provides a way to improve the quality of displays and lower cost, it can also improve the production of electronic devices like solar cells," said Tara Dhakal, director of Binghamton University's Center for Autonomous Solar Power (CASP).

These TFTs are typically produced using one of three processes: [amorphous silicon](#) (a-Si:H), low-temperature polysilicon (LTPS) or Indium Gallium Zinc Oxide (IGZO). But a paper titled "High mobility crystalline silicon film growth below 600 °C from an Au-Si eutectic melt for TFTs," published in *Materials Letters*, suggests an opportunity to replace these processes, including the most popular process, LTPS, entirely.

**More information:** Pravakar Prasad Rajbhandari et al, High mobility crystalline silicon film growth below 600 °C from an Au-Si eutectic melt for TFTs, *Materials Letters* (2018). [DOI: 10.1016/j.matlet.2018.02.080](https://doi.org/10.1016/j.matlet.2018.02.080)

Provided by Binghamton University

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