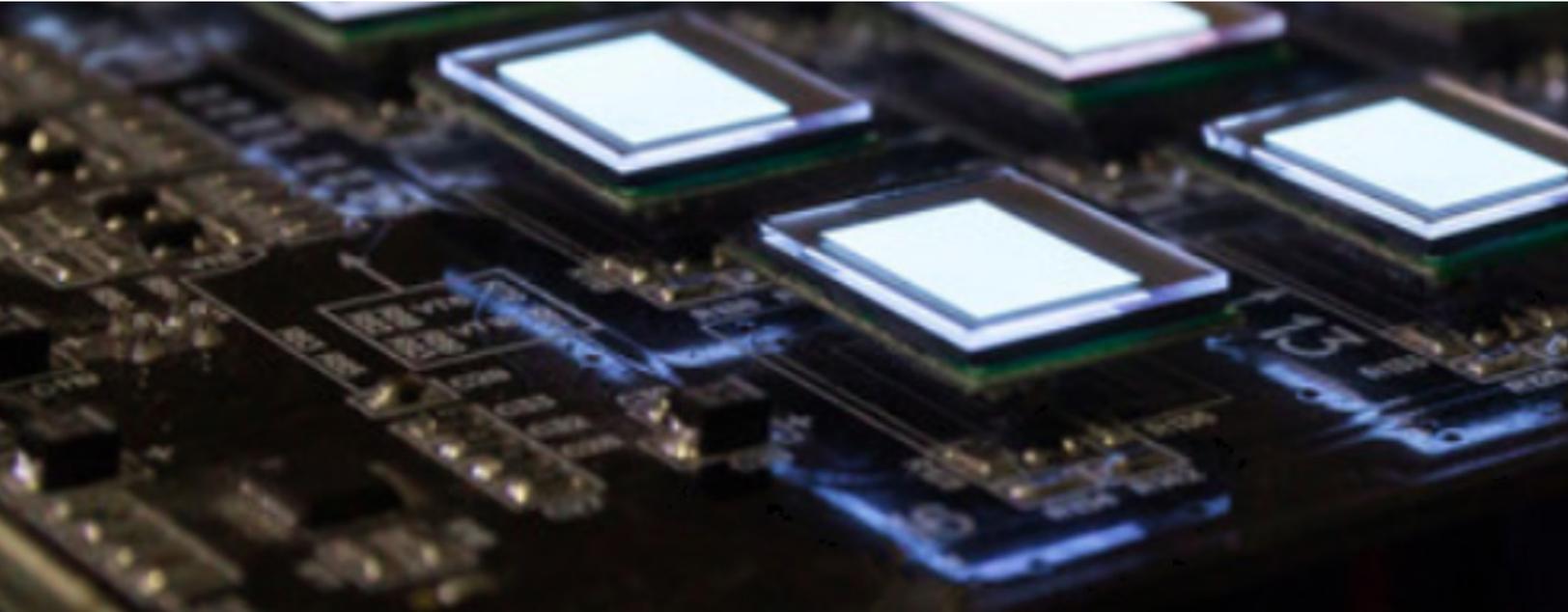


NYSP2I Evaluates Molecular Glasses Energy Efficient OLED Enabling Technology



Molecular Glasses, Inc.

Based out of Rochester, New York, Molecular Glasses, Inc. (MG) is producing a novel class of organic chemicals for organic light emitting diodes (OLEDs). MG's materials are being developed to enable display and light manufacturers to produce OLED devices with longer lifetimes and higher energy efficiencies.

Challenge

Molecular Glasses believes that their OLEDIQ™ ET-610, HT-1900, and ET-18 host materials can enable longer lifetimes and energy efficiencies for OLED devices. Molecular Glasses wanted to evaluate the performance of their host materials in monochrome phosphorescent and thermally activated delayed fluorescence (TADF) OLED devices in comparison to commercially available host materials.

Solutions

Molecular Glasses requested assistance from the New York State Pollution Prevention Institute (NYSP2I) to perform a third-party evaluation of their energy efficient OLED enabling technology. NYSP2I collaborated with OLEDWorks to characterize the performance of MG's host materials compared to commercially available host materials.

Results

The results of the analysis suggest:

- MG's OLEDIQ™ ET-610 and HT-1900 host materials in monochrome phosphorescent and white-emitting OLEDs with stacked architecture exhibited high efficiency in red, green and white devices.
- MG's host material OLEDIQ™ ET-18 performed the best (exhibiting very low efficiency roll-off) and will be further evaluated in green TADF and white phosphorescent OLEDs with devices using reference host materials.

Challenge

- Molecular Glasses requested NYSP2I perform a third-party evaluation of their energy efficient OLED enabling technology

Solution

- NYSP2I collaborated with OLEDWorks to characterize the performance of Molecular Glasses' host materials compared to commercially available host materials

Results

- The results of the analysis suggest that Molecular Glasses' OLEDIQ™ ET-610 and HT1900 exhibited high efficiency and that ET18 was the best performing material and may be further evaluated. The analysis also informs Molecular Glasses research on the impacts of trace halogens in device structure.

Testimonial

- The project informs MG's research on the negative impacts of trace halogens (ppm level) on device operational lifetime. The source of the trace halogens can be from MG's materials or from third party materials used in the OLED stack.

"The NYSP2I team at RIT is thorough, probing, and focused. The team rapidly understood the importance of a third party technology evaluation for Molecular Glasses' unique OLED host materials. The partnership of NYSP2I with OLEDWorks, LLC was productive and efficient. The fabricated device, a two-stack white OLED, is extremely sophisticated with nineteen layers utilizing a combination of physics, chemistry, and micro-architecture to control charge transport and balance, light emission, and light extraction. The results obtained from this project have advanced Molecular Glasses' progress to commercialization."

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