

# NS Nanotech Reports World-Record Performance of Red NanoLED

*Submicron-scale light-emitting diode (LED) is efficient enough for commercial microdisplay applications*

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/EINPresswire.com/ -- [NS Nanotech](https://www.nsnanotech.com/) has reported a new world record for performance of its nanoLED

technology, demonstrating the first submicron-scale red LED efficient enough for commercial applications. The red nanoLED, with external quantum efficiency (EQE) greater than 8%, was fabricated in the University of Michigan laboratory directed by Prof. Zetian Mi, co-founder of NS Nanotech.



Our nanoLED performance breakthroughs have the potential to disrupt important emerging markets, especially for augmented reality and virtual reality headset displays.”

*Dr. Seth Coe-Sullivan, CEO, NS Nanotech*

The light emitting diode is based on patented technology enabling fabrication of components that will be smaller and draw far less power than current LED solutions, while emitting brighter, more saturated, more stable, and more directional light. NS Nanotech, which has exclusive licenses to LED technologies developed by Prof. Mi’s research teams, is working to enable commercial manufacturing of the nanoLEDs.

The results of the demonstration and description of methods used to grow red-emitting gallium nitride (GaN)

nanowire crystals were published by Professor Mi’s team in [Applied Physics Letters](https://doi.org/10.1063/1.5088888).

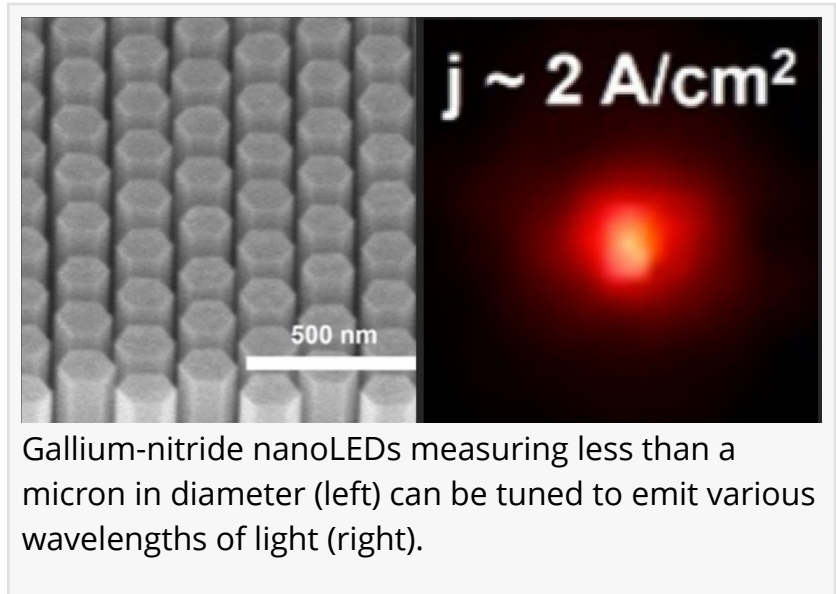
NanoLEDs capable of disrupting AR/VR microdisplay market

“Our nanoLED performance breakthroughs have the potential to disrupt important emerging markets, especially for augmented reality and virtual reality headset displays,” said Dr. Seth Coe-Sullivan, CEO and co-founder of NS Nanotech. “AR/VR eyeglasses will require easily manufactured high-performance nanoLEDs that are orders of magnitude smaller than current LEDs, and we are on a straightforward development path to get there over the next several



years.”

Based on exclusively licensed patent portfolios from McGill University and the University of Michigan, NS Nanotech’s technology introduces new methods for growing nanoLEDs and their resulting structures. The company intends to bring costs below the threshold required for integration of nanoLEDs into microdisplays and countless other end products, with breakthroughs in cost and efficiency delivering performance equivalent to chips that today are ten times the size or more.



Gallium-nitride nanoLEDs measuring less than a micron in diameter (left) can be tuned to emit various wavelengths of light (right).

In addition to red nanoLEDs, NS Nanotech has demonstrated how its technologies have the potential to close the “green gap” in efficiency that currently limits the effectiveness of green LEDs for many applications. In an article published in [Nanoletters](#), Prof. Mi’s group described successful fabrication of a submicron-scale green nanoLED with EQE greater than 25%, a new world record.

#### UVC nanoLEDs for disinfection of Covid-19 and other pathogens

NS Nanotech’s nanoLED technology also has the potential to deliver invisible ultraviolet-spectrum UVC light that has been proven effective in water and air purification and sterilization of medical equipment. By delivering UVC LEDs featuring the same breakthroughs in cost and performance that it delivers for multicolor microdisplays, the company will be positioned to enable new classes of antiviral and anti-microbial purification solutions.

“UVC light effectively deactivates numerous pathogens, including those causing viral airborne diseases such as Covid-19 and influenza,” Coe-Sullivan said. “Building low-cost, high-performance UVC light emitters into the world’s public and private buildings, transportation systems, schools, homes, and other infrastructure where people gather will have the potential to dramatically reduce or avoid future epidemics and pandemics.”

#### About NS Nanotech

NS Nanotech, Inc., founded in Ann Arbor, Michigan in 2017, develops gallium-nitride nanoLEDs for visible displays based on exclusive licenses to patent portfolios owned by the University of Michigan and McGill University. It also develops UVC semiconductors for disinfection applications. In addition to a headquarters office with prototype production capacity in Ann Arbor, the company has an R&D center in Montreal to collaborate with research scientists at

McGill University.

David Copithorne

NS Nanotech, Inc.

+1 617-201-9134

dave@nsnanotech.com

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