Researchers create novel photonic chip

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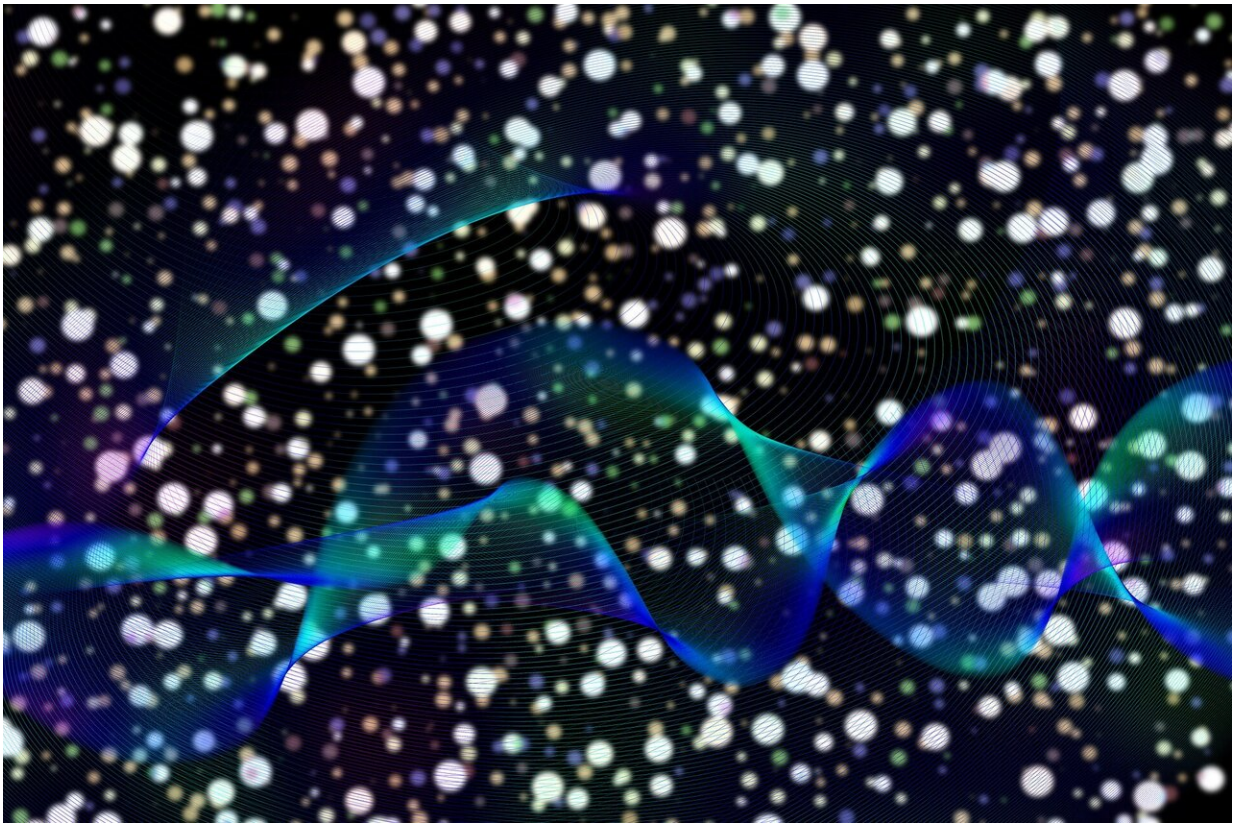

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Researchers at the George Washington University and University of California, Los Angeles, have developed and demonstrated for the first time a photonic digital to analog converter without leaving the optical domain. Such novel converters can advance next-generation data processing hardware with high relevance for data centers, 6G networks,

artificial intelligence and more.

Current optical networks, through which most of the world's data is transmitted, as well as many sensors, require a digital-to-analog conversion, which links digital systems synergistically to analog components.

Using a silicon photonic chip platform, Volker J. Sorger, an associate professor of electrical and computer engineering at GW, and his colleagues have created a digital-to-analog converter that does not require the signal to be converted in the electrical domain, thus showing the potential to satisfy the demand for high data-processing capabilities while acting on optical data, interfacing to digital systems, and performing in a compact footprint, with both short signal delay and low power consumption.

"We found a way to seamlessly bridge the gap that exists between these two worlds, analog and digital," Sorger said. "This device is a key stepping stone for next-generation data processing hardware."

"Electronic Bottleneck Suppression in Next-Generation Networks with Integrated Photonic Digital-to-Analog Converters," is published in *Advanced Photonics Research*.

More information: Jiawei Meng et al, Electronic Bottleneck Suppression in Next-Generation Networks with Integrated Photonic Digital-to-Analog Converters, *Advanced Photonics Research* (2020). DOI: 10.1002/adpr.202000033

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