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WHITE PAPERS & APPLICATION NOTES



IMPACTING HEALTH AND WELL BEING WITH PRECISION LIGHT MEASUREMENT, NETWORKS, AND BIG DATA

From Reducing Headaches to The War On COVID-19.

Web, right. What in the world does light measurement have to do with headaches and, of all things, COVID-19? In short, evolution.



THE EVOLUTION OF LIFE IN THE ABSENCE OF UV-C

Why pathogens do not like UV-C radiation

Let us start with COVID-19, although the discussion extends to most pathogens. As we all know by now, COVID-19 is the disease caused by the novel coronavirus SARS-CoV-2. Like other, similar corona viruses, SARS-CoV-2's genome is a single strand of RNA. As of this writing it has been identified as "probable" that UV-C light can inactivate SARS-CoV-2, because UV-C is known to inactivate other coronal viruses. As COVID-19 cases have risen, the market for UV-C personal protection equipment (PPE) disinfecting products is booming. PPE shortages, along with the costs of certified PPE, make it attractive to re-use the protective equipment after disinfecting it. The market for these products is hot in the healthcare space (hospitals, nursing homes), but also making inroads into the consumer/home space. Figure 1 is a Google Trends chart for the search term "UV-C". Its shape and timing closely mirror important milestones throughout the pandemic timeline.

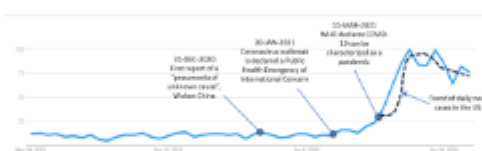


Figure 1. Google Trends chart for the search term "UV-C"

Health and Light Measurement

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Impacting Health and Well Being with Precision Light Measurement, Networks, and Big Data

Precision light measurement positively impacts our efforts to improve health, comfort, and productivity. Today's availability of advanced detectors, high-performance compute, scale-out sensor connectivity, and big data analytics can be applied to light measurement to explore and solve existing and emerging problems. Two application areas are explored: (1) the use of UV-C to deactivate pathogens including SARS-CoV-2 and (2) the optimization of artificial lighting, particularly LED lighting.

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