

## *New Research That Shows Critical Weak Point of SARS-CoV-2 Demonstrates Effectiveness of Needlepoint Bipolar Ionization (NPBI™) for Building Air Purification in Targeting Virus's Vulnerabilities*

Northwestern University study highlights benefits of neutralizing the positively charged CoV-2 virus; the same principle renders virus inactivation through [Global Plasma Solutions'](#) proprietary air treatment technology for schools, offices, transportation hubs and hospitality

CHARLOTTE, North Carolina (September 22, 2020) – A new study, [“Enhanced Binding of SARS-CoV-2 Spike Protein to Receptor by Distal Polybasic Cleavage Sites”](#) by Northwestern University, proves electrostatic forces cause SARS-CoV-2 binding to the human cells, supporting data on the technology and effectiveness of needlepoint bipolar ionization (NPBI™) air purification for HVAC systems.

In the study, scientists identified a region just 10 nanometers outside of the receptor-binding domain (RBD) of the coronavirus, or the spike protein. This region has a positive charge, which interacts with a human's negatively charged cell receptor, ACE2, causing infection in humans. The RBD-ACE2 binding is caused by an electrostatic force, creating a tight bond that ultimately allows the virus to infect the cell. The scientists discovered that by neutralizing the positive RBD region with a negatively charged molecule, the coronavirus was unable to attach to a target host cell.

“In showing how a negatively charged molecule neutralizes the positively charged coronavirus protein spike, Northwestern University's recent study shows exciting insight into our own tech data on NPBI's effectiveness in air purification for indoor air, and it provides an interesting illustration of how electrostatic forces work to target SARS-CoV-2's vulnerability,” said Charlie Waddell, chief technology officer for Global Plasma Solutions (GPS).

Ions are molecules or atoms with either a positive or negative charge. “NPBI leverages an electric field to create a high concentration of positive and negative ions,” said Waddell of the GPS technology, which launched in 2009 as an HVAC solution that purifies the air by reducing airborne particulate, viruses, mold spores and bacteria — a solution that is making offices, schools and transportation hubs safer in a COVID-aware world. “When these ions disperse throughout a room, they combine with particles of opposite polarity suspended in the air, including pathogens. This clustering makes them easier to capture in filtration systems. In the case of pathogens, contact with negative ions also disrupts their surface proteins, which makes the pathogens inactive and no longer infectious.”

NPBI technology is being used in dozens of offices, schools, airports, hospitals and community spaces worldwide, including Google, University of Maryland, Boston Children's Hospital and Charlotte Douglas International Airport.

For more information on Northwestern University's study or GPS' NPBI technology, please see:

- Science Daily: [Research Exposes New Vulnerability for SARS-CoV-2](#)
- GPS: [Reducing Airborne Virus Through Better Indoor Air](#)

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### **About Global Plasma Solutions**

Global Plasma Solutions (GPS) is the leader in indoor air quality, with over 30 patents and more than 250,000 installations worldwide using our needlepoint bipolar ionization (NPBI) technology to deliver clean indoor air that is safe and healthy, producing neither ozone nor other harmful byproducts. All of our NPBI products are UL and CE certified and registered and use NPBI to purify the air by eliminating airborne particulates, odors and pathogens. GPS was founded in 2009 and is headquartered in Charlotte, North Carolina.

