

# VIPC Awards CCF Grant to Virginia Tech for Novel Semiconductor-based Diode Technology for Power Electronics Applications

*CCF funding will support Dr. Yuhao Zhang in advancing lower-cost, higher performance power rectifier to deliver energy efficient conversions.*

RICHMOND, VIRGINIA, UNITED STATES, March 27, 2024 /EINPresswire.com/ -- The Virginia Innovation Partnership Corporation ([VIPC](#)) today announced that [Virginia Tech](#) has been awarded a Commonwealth Commercialization Fund ([CCF](#)) grant for \$100,000 in support of research conducted by Dr. Yuhao Zhang. VIPC's CCF programs have distributed more than \$55 million to Virginia-based startups, entrepreneurs, and university-based inventors since 2012 in support of critical early technology testing and market validation efforts.



A power diode is a semiconductor device that is ubiquitously utilized for electric energy conversion in applications such as electric vehicles, data centers, electric grids, and renewable energy processing. Ideal power diodes provide high voltage, high current, and fast switching speeds, which help determine system efficiency, weight, and size. Advances in power diode performance rely on innovations in semiconductor materials and device architectures. Commercial power diodes are based on the semiconductor silicon or silicon carbide, with the latter offering higher performance but suffering from 3x higher cost. In his lab at Virginia Tech, Zhang and his team have developed a new alternative using gallium nitride that can achieve performance superior to silicon carbide diodes at 60% lower cost.

“Development of this breakthrough diode technology began with fundamental research that led to demonstration of world-record performance in small-sized samples,” said Zhang, Assistant Professor at the Center for Power Electronics Systems in Virginia Tech’s Bradley Department of Electrical and Computer Engineering. “With the support of VIPC, we are removing the technical hurdles and exploring the pathway to scale the technology towards industrial manufacturing and



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*Dr. Yuhao Zhang, Virginia Tech*

applications.”

CCF funding will be used to demonstrate a minimal viable product, specifically the demonstration of large-current packaged diodes and device testing in power circuits.

“VIPC’s CCF program provides an excellent opportunity for university groups like Dr. Zhang’s to advance technology readiness levels for never-before-seen innovations developed in the lab,” said Hina Mehta, VIPC’s Director for University Programs. “The support that we can provide is critical for the technology transfer of university-produced

knowledge, a process beneficial to both academia and industry in the Commonwealth and beyond. Dr. Zhang’s discovery will have a real impact the global transition to electrical power.”

Virginia Tech is a public research university based in Blacksburg, Va.

About Virginia Innovation Partnership Corporation (VIPC)

Connecting innovators with opportunities. As the nonprofit operations arm of the Virginia Innovation Partnership Authority (VIPA), VIPC is the commercialization and seed stage economic development driver in the Commonwealth that leads funding, infrastructure, and policy initiatives to support Virginia’s innovators, entrepreneurs, startups, and market development strategies. VIPC also collaborates with local, regional, state, and federal partners to support the expansion and diversification of Virginia’s economy.

Programs include: Virginia Venture Partners (VVP) | VVP Fund of Funds | Commonwealth Commercialization Fund (CCF) | Petersburg Founders Fund (PFF) | Smart Communities | The Virginia Smart Community Testbed | The Virginia Unmanned Systems Center | Virginia Advanced Air Mobility Alliance (VAAMA) | The Public Safety Innovation Center (PSIC) | Entrepreneurial Ecosystems | Regional Innovation Fund (RIF) | Federal Funding Assistance Program (FFAP) for SBIR & STTR | University Partnerships | Startup Company Mentoring & Engagement.

For more information, please visit [www.VirginiaIPC.org](http://www.VirginiaIPC.org). Explore the latest news from VIPC and images from VIPC-supported stakeholder events. Follow VIPC on Facebook, X (formerly Twitter), and LinkedIn.

About the Commonwealth Commercialization Fund (CCF)

VIPC’s Commonwealth Commercialization Fund (CCF) accepts applications and awards funding on a rolling basis to Virginia’s small businesses and university-based innovators. For Virginia’s academic and nonprofit research community, the competitive grant program seeks to fund high-potential Virginia-based academic research teams that are developing technologies with strong commercial potential. The grants support early technology and market validation efforts such as

customer discovery, market research, business model validation, the development of prototypes or minimum viable products (MVPs), customer pilots, and intellectual property protection, team development, and more. For more information on funding opportunities and eligibility requirements, or to apply, visit the CCF pages from [www.VirginialPC.org](http://www.VirginialPC.org).

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