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A major materials award for Chris Van de Walle

James Badham
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Materials professor Chris Van de Walle has been awarded the 2023 Materials Theory Award from the Materials Research Society (MRS), the leading professional society dedicated to advancing materials science. MRS gives a single Theory Award each year, in recognition of “exceptional advances made by materials theory to the fundamental understanding of the structure and behavior of materials.”

Van de Walle was recognized specifically for his contributions in developing ab initio (first principles) methodologies for understanding how point defects affect light emission in wide-bandgap semiconductors.

“I was thrilled to receive the news of this award,” said Van de Walle, who also acknowledged the essential contributions of students and postdocs to the work recognized by the award. “My work is based on computational physics and is quite fundamental in nature. While I have always put great emphasis on making connections to real-world applications, it wasn’t evident that this impact would be readily recognized. The award confirms that I have had some success in communicating our results to experimentalists who seek guidance in understanding

and designing materials.”

The award, which includes a cash prize, a trophy and a certificate, presented at the Fall 2023 MRS meeting, is a significant milestone in Van de Walle’s remarkable research career. Along the way he has coupled mastery of computational and condensed-matter physics with an ability to identify critical challenges related to technological applications.

In addition to his work on point defects, he has made significant contributions to the understanding of interfaces and nonradiative recombination rates in semiconductor materials. His findings have induced paradigm shifts in the understanding of semiconductors and his publications serve as authoritative guides in the field.

The impact of Van de Walle’s work is evident not only in prizes such as the MRS Theory Award, but equally through the remarkable number of citations to his publications, which for the past six years have earned him distinction as a Highly Cited Researcher on the annual list produced by Clarivate Analytics.

Van de Walle noted that his career has been enabled by the welcoming atmosphere he encountered when he arrived in the United States as a student in the 1980s.

“Maintaining such an open door is essential to the success of the United States as a leader on a global scale,” he said.

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