

To: Patrick J. Wolfe, Provost and Executive Vice President for Academic Affairs and Diversity

From: Arvind Raman, John A. Edwardson Dean of the College of Engineering *Arvind Raman*

Date: June 21, 2023

Subject: **Recommendation of to name Scott Sudhoff the Michael and Katherine Birck Distinguished Professor of Electrical and Computer Engineering**

I am pleased to provide my highest recommendation for Dr. Scott Sudhoff to be appointed as the Michael and Katherine Birck Distinguished Professor of Electrical and Computer Engineering. Dr. Sudhoff's exceptional accomplishments, global recognition, and significant impact in the field make him an ideal candidate for this distinguished position.

Throughout his illustrious career, Dr. Sudhoff has demonstrated unparalleled expertise and leadership in the fields of electric machinery analysis and design, as well as related magnetics. His contributions can be divided into two distinct phases, each marked by groundbreaking advancements. In his early phase, Dr. Sudhoff focused on time-domain modeling, applied control, and the development of admittance-based stability criteria and nonlinear stabilizing control for electric drives in DC power systems. These advancements have had practical applications in various domains, including ships, cars, and electrified vehicles.

In his later phase, Dr. Sudhoff turned his attention to design methods and the invention of novel devices and systems. He spearheaded the development of the first distribution-class solid-state transformer, revolutionizing power quality and reducing the materials required for traditional magnetic transformers. Furthermore, his automated design approach, grounded in low-level material modeling, efficient magnetic modeling, thermal and structural modeling, and evolutionary computing, has led to improved designs, reduced engineering time, and the invention of multiple new devices. Dr. Sudhoff's work has not only advanced the understanding and design of electric machinery but has also yielded practical applications that have had a significant impact on industries and the engineering community at large.

Dr. Sudhoff's impact extends beyond his research achievements. He has made substantial contributions to the academic community through his exceptional supervision of graduate theses. Having supervised 32 PhD theses and 23 Master's theses, with ongoing supervision of several more, Dr. Sudhoff has demonstrated a commitment to nurturing the next generation of engineers and researchers. He has also contributed to the development of Electrical Engineering programs by supervising EE496 projects and developing seven courses in the field.

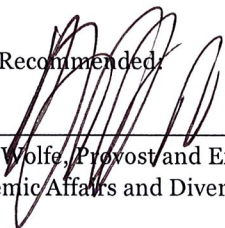
Furthermore, Dr. Sudhoff's extensive publication record, which includes contributions to books, book chapters, and 97 journal articles, showcases his dedication to knowledge dissemination. He has also shared his research findings and expertise at numerous conferences and seminars, solidifying his reputation as a preeminent scholar.

In addition to his academic contributions, Dr. Sudhoff has actively served professional societies, including his involvement with the Institute of Electrical and Electronics Engineers (IEEE). He has held key positions such as Editor-in-Chief for IEEE Transactions on Energy Conversion from 2007 to 2013 and IEEE PES Power and Energy Systems Technology Journal from 2013 to 2020. Dr. Sudhoff's leadership has been recognized through his roles as General Chair of the Electric Ship Technology Symposium in 2017 and 2019, as well as his active participation in the Tesla Award Committee. A Fellow of IEEE, Dr. Sudhoff is a two-time recipient of SAE International's Charles M. Manly Memorial Medal. He was also honored with the IEEE Power Engineering Society's Cyril Veinott Electromechanical Energy Conversion Award and has received numerous best paper distinctions.

The ECE Primary Committee voted 13 – 3 in favor of nomination for Dr. Sudhoff's recommendation to Distinguished Professor. Only one of the no votes left a comment stating, "Scott is a great colleague. I feel though that his research contributions over the last several years (5-10) have not been prominent enough to warrant elevation to Distinguished Professor level. His awards and most high impact publications are 15+ years old." While the majority do not agree with the assessment regarding newer contributions, there is also no Purdue policy that older contributions are less valid, thus limiting the relevance of the age of his contributions. The Ad hoc committee voted 5 to 0 in favor of recommending Professor Sudhoff to the position of Distinguished Professor, as summarized in their inter-office memorandum. Members of the committee discussed the "no" comment from the Primary committee, stating that processes and publishing in the power division of ECE doesn't move at the same pace that one may see in the computer division, and that Scott is actually working at a very significant trajectory.

Given Dr. Sudhoff's outstanding achievements, global recognition, and significant impact in the field of electrical and computer engineering, I wholeheartedly recommend his appointment as the Michael and Katherine Birck Distinguished Professor. This prestigious title would not only acknowledge Dr. Sudhoff's exceptional contributions but also inspire future generations of students and researchers. His leadership, expertise, and dedication make him an invaluable asset to the department, the university, and the broader academic community.

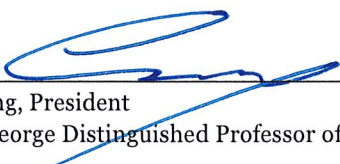
Approval Recommended:

  
Patrick J. Wolfe, Provost and Executive Vice President  
For Academic Affairs and Diversity

7/17/23

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Date

Approved:

  
Mung Chiang, President  
Roscoe H George Distinguished Professor of Electrical and Computer Engineering

7.18.2023  
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Date

Cc:  
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