

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 20, 2023

Subject: **Recommendation of Alexandra Boltasseva be named the Ron and Dotty Garvin Tonjes Distinguished Professor in Electrical and Computer Engineering**

Dr. Alexandra Boltasseva is a highly accomplished and influential scientist in the field of nanophotonics, plasmonics, and optical metamaterials. Her groundbreaking research has led to significant advancements in these areas, revolutionizing the field and opening up new possibilities for optical device applications.

One of Dr. Boltasseva's key contributions is the development of new metamaterials using conducting oxides and doped nitrides. These materials offer reduced optical loss, tunability, and high-temperature operation, overcoming the limitations of traditional noble metals like gold and silver. Her work has demonstrated the use of low-loss oxides and nitrides in metamaterials, plasmonic interconnects, and industry-standard low-cost processes.

Dr. Boltasseva's papers in these areas are highly cited and have received significant recognition within the scientific community. Her research has been influential in shaping the field of nanophotonics and metamaterials, and she is widely regarded as a prominent young scientist in the field.

In addition to her contributions in materials research, Dr. Boltasseva has expanded her interests to quantum technologies and the application of machine learning in nanophotonics. Her research program is highly productive, with a remarkable publication record and numerous invited talks and presentations at international conferences and universities.

Dr. Boltasseva has received numerous honors and awards throughout her career, including the Young Investigator Award from both the Materials Research Society and the IEEE Photonics Society. She is a Fellow of Optica, SPIE, IEEE, and MRS, and has been repeatedly recognized as a Highly Cited Researcher by Web of Science. Her most recent honors include the prestigious Guggenheim Fellowship in 2022 and Optica's prestigious R.W. Wood Prize in February 2023.

Not only is Dr. Boltasseva an accomplished researcher, but she also demonstrates strong leadership within Purdue University and externally. She has served in various leadership roles, chaired conferences, and contributed to advisory boards and committees. Her external letters of evaluation unanimously and enthusiastically support her appointment as a Distinguished Professor.

The ECE Primary committee review came to a vote of 12-6 in support of a recommendation for Dr. Boltasseva for distinguished professorship. However, despite content encouragement and reminders to submit comments for both yes and no votes, 4 no votes had no comment. The two that did leave comments noted:


'While Sasha's trajectory is positive, since her named professorship, the contributions do not yet rise to the level of a Distinguished Professor. Her contributions have been a little all over the map and she would be well advised to strive for key contributions in a more limited number of problem domains.'

'Undoubtedly a rising star, but this seems premature.'

Conversely, the Ad Hoc committee voted unanimously 5-0 in favor of a recommendation of Dr. Boltasseva and felt that, had she received the Wood Prize prior to the ECEPC vote, it would have undoubtedly swayed the negative votes in her favor.

In summary, Dr. Sasha Boltasseva is an exceptional scientist whose groundbreaking research and contributions to the field of nanophotonics, plasmonics, and optical metamaterials have had a significant impact. Her innovative work, strong publication record, leadership abilities, and external recognition make her an excellent candidate for the Ron and Dotty Garvin Tonjes Distinguished Professor of Electrical and Computer Engineering.

Approval Recommended:




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



Date

Approved:



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



Date

Cc
Luna Lu
Brittany Vestal
Milind Kulkarni
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