

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 Michael Sangid to Named Professorship, Reilly Professor of Aeronautics and Astronautics Engineering**

I am writing to provide my strongest endorsement for Dr. Michael Sangid as a candidate for the Reilly Professor in Aeronautics and Astronautics Engineering. Dr. Sangid's exceptional achievements and significant contributions to the fields of aerospace engineering and make him the ideal choice for this named professorship.

Dr. Sangid's most notable contributions lie in his groundbreaking research on advanced materials and their applications in the aerospace industry. His innovative approaches to structural design, manufacturing, and life analysis have led to the development of safer, more energy-efficient, and higher-performing aerospace components. Through computational analysis of microstructure, he has revolutionized the certification process for critical components, ensuring their safe operating life.

Dr. Sangid has developed cutting-edge techniques for in situ micromechanical measurements. Moreover, his team's establishment of a high-throughput setup, supported by a National Science Foundation Major Research Instrument award, has provided open access to the user community, benefitting researchers across the field. These contributions have significantly advanced the understanding of failure mechanisms and facilitated the integration of materials into the design and manufacturing processes.

Dr. Sangid's impact extends beyond research, as he has been at the forefront of curricular innovation at Purdue University. He has spearheaded the design, development, and deployment of Virtual Labs, offering students a more interactive and enriching laboratory experience. His commitment to scalable educational enhancements is evident through the implementation of these labs in various courses throughout the university.

The impacts of Dr. Sangid's work are profound. His microstructure-based modeling approaches have led to advancements in fatigue life predictions, resulting in extended lifetimes for aerospace components. Through collaboration with major aerospace gas turbine companies, he has addressed critical production issues and resolved long-standing materials problems, effectively preventing catastrophic failures. His qualification of additive manufacturing materials for aerospace applications has drastically reduced testing time and costs, expedited decision-making, and enabled the development of lighter and higher-performing components. Moreover, his advancements in fatigue modeling for gas engine design have yielded more accurate fatigue life assessments, potentially resulting in substantial fuel savings and reduced emissions.

Dr. Sangid's research contributions have been acknowledged through numerous prestigious awards and high-profile publications, solidifying his position as a top national and international expert in his field. He is a recipient of the TMS Young Leaders Award (2013), the *International Journal of Fatigue* Most Downloaded Journal Paper (2013-2015), an Air Force Office of Scientific Research Young Investigator Award (2014), an Office of Naval Research Young Investigator Award (2014), a Defense Advanced Research Projects Agency Young Faculty Award (2014), the American Society of Mechanical Engineers Materials Division Orr Early Career Award (2015), a TMS Early Career Faculty Fellowship (2016), a DARPA Director's Award for Best Young Faculty Award Project (2016), and an NSF CAREER Award (2017). A University Faculty Scholar (2022), Dr. Sangid was honored by the Manufacturing Leadership Council with their Manufacturing Leadership Award (2020).

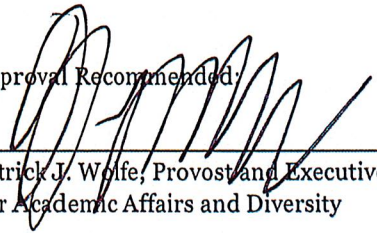
In addition to his academic contributions, Dr. Sangid's outreach efforts have made a significant impact on the community. As the faculty advisor to Purdue Space Day, he has provided hundreds of students with hands-on STEM activities, inspiring a passion for science and engineering at a young age. Furthermore, his engagement with neighboring middle schools has reached thousands of students, nurturing the next generation of scientists and engineers.

Looking ahead, Dr. Sangid envisions continued research growth and the lasting scientific contributions he can make to the field. His recent establishment of the Hypersonics Advanced Manufacturing Technology Center (HAMTC) serves as a testament to his dedication to enhancing national security and driving technological advancements. Through HAMTC, he aims to foster collaboration among industry partners, facilitate academic innovation, and accelerate progress in the field of hypersonics.

The AAE Primary committee found 3-0 in favor of recommending Dr. Sangid for named professorship. Similarly, the ENPC voted 7-0 in support of his nomination, citing that more external rewards should be pursued to support the depth and breadth of Dr. Sangid's work, but that he was "...strong in both research and teaching", and was, "... already well-established in the Fatigue Materials field. Research and teaching have been excellent. He is serving as a coeditor of a journal focusing on fatigue materials. It is time to recognize his achievements."

In conclusion, Dr. Michael Sangid's exceptional accomplishments, impact, and vision make him an outstanding candidate for the position of Reilly Professor in Aeronautics and Astronautics Engineering. I wholeheartedly endorse Dr. Sangid without reservation.

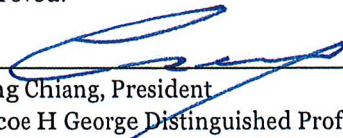
Approval Recommended:



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

7/17/23
Date

Approved:



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

7.18.2023
Date

Cc:

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