

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering
Department of Materials Science and Engineering

Approved by the
Regents
May 21, 2015

Pierre F. Poudeu Poudeu, assistant professor of materials science and engineering, Department of Materials Science and Engineering, College of Engineering, is recommended for promotion to associate professor of materials science and engineering, with tenure, Department of Materials Science and Engineering, College of Engineering.

Academic Degrees:

Ph.D.	2004	Dresden University of Technology, Inorganic Solid State Chemistry, Dresden, Germany
D.E.A.	1999	University of Yaoundé-I (Diplôme D'Etude Approfondie), Inorganic and Materials Chemistry, Cameroon
M.S.	1998	University of Yaoundé-I, Inorganic Chemistry, Cameroon
B.S.	1996	University of Yaoundé-I, Chemistry, Cameroon

Professional Record:

2011 – present	Assistant Professor, Materials Science and Engineering Department, University of Michigan
2010 - 2011	Early Research Professor, University of New Orleans
2007 - 2011	Assistant Professor, The Advanced Materials Research Institute, University of New Orleans
2007 - 2011	Assistant Professor, Department of Chemistry, University of New Orleans
2006 - 2007	Post-doctoral Research Associate, Department of Chemistry; Northwestern University
2004 - 2006	Post-doctoral Research Associate, Department of Chemistry, Michigan State University

Summary of Evaluation:

Teaching: Professor Poudeu has taught four different courses at the University of Michigan. He has continued to put tremendous effort into providing research experiences for undergraduate students, particularly from underrepresented and underserved groups. He furthermore devoted himself to implementing new pedagogical techniques in his classroom teaching. He drastically modernized the way he is interacting with students in the classroom, pursuing a highly engaged classroom approach and employing modern teaching techniques such as Pearson's Learning Catalytics. His innovative approach is acknowledged in student letters. All students commend Professor Poudeu for how much time he spends with them in one-on-one instruction outside the classroom, and how genuinely dedicated he is to their academic fulfillment. His mentoring of graduate students and the many undergraduate students involved in research experiences with him, is exemplary. All students he has advised in doing research have developed a strong appreciation of the way he has influenced their intellectual and professional growth.

Research: Professor Poudeu is a solid-state chemist who has a knack for developing very clever synthesis routes that allow him to create novel materials with disruptively improved performance characteristics in applications such as thermoelectric devices, solar cells, and new functional magnetic semiconductors. Among his research accomplishments, the *in situ* precipitation of chemically compatible metallic nano-inclusions in a semiconductor matrix to create materials with

superior thermoelectric performance, and the formulation of ternary compounds with two interspersed sub-lattices so as to control semiconductor and magnetic properties independently, are considered major scientific breakthroughs. They have earned him international visibility and recognition. Professor Poudeu has published close to 70 archival journal articles and conference proceedings; the 54 tracked by Thomson Reuters have garnered a total of 662 citations, with an h -index of 13 (or 785 citations and $h = 14$ according to Google Scholar). His citation rate is well above 100 per year since arriving at the University of Michigan, and growing. He has given 26 invited presentations, among which, a prestigious Gordon Research Conference talk. Over the course of his academic career, he has raised \$2.3M in research funding from federal and state agencies as the PI, and another ~\$4.6M as the co-PI of two multi-PI DARPA grants.

Recent and Significant Publications:

Pranati Sahoo, Yuanfeng Liu, Julien P. A. Makongo, Xian-Li Su, Sung Joo Kim, Nathan Takas, Hang Chi, Ctirad Uher, Xiaoqing Pan, Pierre F. P. Poudeu, Full-Heusler nanostructures Boost Thermopower and Hole Mobility in Bulk p -type Half-Heuslers, *Nanoscale* 2013, 5, 9419-9427.

Yuanfeng Liu, Pranati Sahoo, Julien P. A. Makongo, Xiaoyuan Zhou, Sung-Joo Kim, Hang Chi, Ctirad Uher, Xiaoqing Pan and Pierre F. P. Poudeu, Large Enhancements of Thermopower and Carrier Mobility in Quantum Dots Engineered Bulk Semiconductors; *Journal of the American Chemical Society* 2013, 135, 7486–7495.

Kulugamma G. S. Ranmohotti, Honore Djieutedjeu, Pierre F. P. Poudeu, Chemical Manipulation of Magnetic Ordering in $Mn_{1-x}Sn_xBi_2Se_4$ Solid-Solutions, *Journal of the American Chemical Society* 2012, 134, 14033–14042.

P.F.P. Poudeu, N. Takas, C. Anglin, J. Eastwood, A. Rivera, $FexPb_{4-x}Sb_4Se_{10}$: A New Class of Ferromagnetic Semiconductors with Quasi 1D $[Fe_2Se_{10}]$ Ladders, *Journal of the American Chemical Society* 2010, 132, 5751 – 5760

H. Djieutedjeu, P.F.P. Poudeu, N.J. Takas, J.P.A. Makongo, A. Rotaru, Ranmohotti, K.G.S. C. J. Anglin, L. Spinu, J.B. Wiley, Structural Distortion Driven Cooperative Magnetic and Semiconductor-to-Insulator Transitions in Ferromagnetic $FeSb_2Se_4$, *Angewandte Chemie International Edition* 2010, 49, 9977 – 9981. (Listed as Hot Topics on magnetic materials)

Service: Professor Poudeu has served on a number of departmental committees, including the undergraduate and graduate committees, and has co-organized the departmental seminar series for two years in a row. He served on the College of Engineering's Martin Luther King Committee and as a participant in the NextProf speed networking session. He is an associate editor for two journals and a guest editor for two other topical journal issues. He reviews manuscripts for over 20 journals, reviews proposals for several major U.S. funding agencies, and is actively involved in conference organization. While his service contributions have met expectations with a comfortable margin, the two activities that stand out are his editorships and his outreach work.

External Reviewers:

Reviewer A: "In terms of productivity in all the domains of research, teaching, outreach, mentorship, service to the department, he appears to be very productive. ...he would certainly earn tenure in most Major research universities around the country."

Reviewer B: "[Professor Poudeu's] list of publications with more than 50 papers in high-ranking journals testifies to his productivity and striking quality of his research..."

Reviewer C: “It should be noted that Assistant Professor Poudeu outsmarted tough competition (Max Planck Director Claudia Felser who has worked most of her career on Heusler compounds). He is clearly a rising star...”

Reviewer D: “...Prof. Poudeu has established an outstanding research program and has made a significant impact in the field of low-dimensional magnetic materials, thermoelectrics and photovoltaics. He is clearly accomplished...”

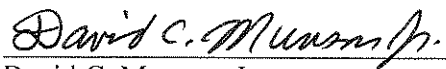
Reviewer E: “...Poudeu’s work strikes the right balance of rational design and serendipitous discovery. The scholarly quality of his papers is high and they are a pleasure to read. They have been published in some of the best journals in the field...”

Reviewer F: “Dr. Poudeu has made important and seminal contributions in the area of thermoelectricity...I rank him among the best solid state chemists in the United States...”

Reviewer G: “... have no hesitation in placing him in the top quartile, in terms of creativity and productivity, ... completely confident, that he would be granted tenure in my own Department.”

Reviewer H: “... Poudeu’s recent work on Heusler/half-Heusler nanocomposites [*J. Am. Chem. Soc.* 2013, 135, 7486–7495] was one of the most important recent advances in the field of transport properties of nanoscale materials.”

Summary of Recommendation: Professor Poudeu has laid a firm foundation for a successful and high-impact academic career at the University of Michigan. He has gained national and international recognition for creative materials synthesis approaches, leading to disruptive performance improvements in thermoelectrics and magnetic semiconductors. He has an exemplary record of service and outreach. He is a superb research mentor to graduate and undergraduate students, and he is profoundly dedicated to improving student learning success by implementing new pedagogical methods. It is with the support of the College of Engineering Executive Committee that I recommend Pierre F. Poudeu Poudeu for promotion to associate professor of materials science and engineering, with tenure, Department of Materials Science and Engineering, College of Engineering.



David C. Munson, Jr.
Robert J. Vlasic Dean of Engineering
College of Engineering

May 2015