Approved by the Regents
May 19, 2016

PROMOTION RECOMMENDATION
The University of Michigan-Dearborn
College of Arts, Sciences, and Letters

Krisanu Bandyopadhyay, associate professor of chemistry, with tenure, Department of Natural Sciences, College of Arts, Sciences, and Letters, is recommended for promotion to professor of chemistry, with tenure, Department of Natural Sciences, College of Arts, Sciences, and Letters.

Academic Degrees:

Ph.D. 1999	National Chemical Laboratory, Pune, India, Surface/Materials Chemistry
M.S. 1992	University of Calcutta, Calcutta, India, Chemistry
B.A. 1990	University of Calcutta, Calcutta, India, Chemistry

Professional Record:

2010 – Present	Associate Professor of Chemistry, University of Michigan-Dearborn
2005 – 2010	Assistant Professor of Chemistry, University of Michigan-Dearborn
2003 – 2005	Post-doctoral Fellow Keck Graduate Institute of Applied Life Sciences, Claremont, CA & Harvey Mudd College, Claremont, CA
2000 – 2002	GE Global Corporate Research and Development, GE India Technology Center Polymer and Synthetic Material group, Bangalore, India
1998 – 2000	Teaching Post-doctoral Fellow, Department of Chemistry University of Miami, Miami, FL

Summary of Evaluation:
Teaching: Professor Bandyopadhyay's teaching is excellent. He taught several upper and lower division courses in chemistry: General Chemistry I lecture (CHEM 134) five times, General Chemistry I and 2 (CHEM 134 & CHEM 136 Recitation/lab) many times, Physical Chemistry (CHEM 368) (four times), Nano biotechnology (CHEM 437/CHEM490E) four times, Physical Chemistry Lab (CHEM 469) six times, and Physiochemical Measurements (CHEM 481) six times.

Professor Bandyopadhyay sets "rigorous standards" and sets high expectations in his introductory classes as well as upper level offerings. As a result, the outstanding responses by students to his teaching impresses all. He carefully spells out how the students will need to be responsible for keeping up and for their learning. In lecture, he identifies and reiterates the reasons for why he gives the lecture, and why these topics are important for the students. He convinces them that to understand chemistry will help them be successful in their career goals. Professor Bandyopadhyay is skilled at maintaining a good rapport with the students, and is often seen in the hallways with three to seven of them around him. He is very organized in the exams and works diligently with the other chemists to proctor exams in a professional and proper way. Students report they are not "alone" in the class, and that Professor Bandyopadhyay is omnipresent, helping and encouraging them always. Student evaluations are replete with accolades for Professor Bandyopadhyay. Some comments in CHEM 134 include "students respect him and his efforts." "Extremely knowledgeable, very kind, always helpful,

knows how to communicate with students very effectively." "Dr. B is an amazing professor and human being. He clearly relays the course material and what is expected..." and "genuinely wants students to be successful." Student evaluations for the CHEM 134 lecture and CHEM 134 and 136 recitations were quite similar, generally between 4.5 – 4.8 for summative assessment. These numbers are quite exceptional given a 100 level class. He is truly a "Rock Star."

The upper level courses taught by Professor Bandyopadhyay were within his specialty areas of Physical Chemistry I and Nanotechnology. In the four lectures in Physical Chemistry I (CHEM 368), students congratulated him on his marvelous efforts, and provided evaluation overall scores of 4.4 – 4.8. Nanobiotechnology (CHEM 437/CHEM490E) was offered four times and overall scores in student evaluations were 4.6 – 4.8.: again outstanding. Physical Chemistry II Lab/Recitations were offered six times, and evaluation scores were 4.4. Finally, Physiochemical Measurements (CHEM 481) was taught six times. Evaluations ranked Professor Bandyopadhyay very highly; 4.4 -4.74. As in the introductory classes, Professor Bandyopadhyay is a magnet for students with desires in chemistry and health careers. Reflecting on the upper level class comments, some students said: "very knowledgeable, wants his students to do well and understood the subject, is willing to spend extra time to make sure all is understood." "Very enthusiastic, great at explaining difficult material. Made class enjoyable." "He was always willing to answer questions."

Research: Professor Bandyopadhyay's research is excellent. He is intrigued by, 1) metal nanoparticle synthesis used for catalytic applications, 2) DNA detection using carbon nanotube arrays, 3) two dimensional metal nanoparticle assemblies as biosensor, and 4) metal nano-shell synthesis and photo-thermal properties. Professor Bandyopadhyay's projects involve the assembly of nano structures, and putting them to use: practical applications. Primarily a materials chemist, he sees the future as bright for engineering novel machines and materials using nanotechnology. Impressively, he does this work successfully with our undergraduate students. He published five peer-reviewed articles (of thirty total), often engaging undergraduates in these efforts too. Besides accompanying his students to national meetings for their presentations, Professor Bandyopadhyay succeeded in bringing over one half million dollars in grants to support his research.

Recent and Significant Publications: * = undergraduate author

Jinghai Xu, Krisanu Bandyopadhyay, and Dohoy Jung, (2015) Experimental investigation on the correlation between nanofluid characteristics and thermal properties of Al_2O_3 nanoparticles dispersed in ethylene glycol-water mixture. *International Journal of Heat and Mass Transfer* In Press. (not reviewed externally and recently accepted).

R. Wallen*, N. Gokarn*, P. Bercea*, E. Grzincic* and K. Bandyopadhyay, (2015) Mediated electron transfer at vertically aligned single-walled carbon nanotube electrodes during detection of DNA hybridization. *Nanoscale Research Letters* 10: 268.

E. Grzincic*, R. Teh*, R. Wallen*, G. McGuire*, A. Yella, B. Q. Li and K. Bandyopadhyay, (2014) Synthesis of gold and palladium nanoshells by in situ generation of seeds on silica nanoparticle cores. *RSC Advances* 4: 32283.

D. Renard*, C. McCain*, B. Baidoun*, A. Bondy* and K. Bandyopadhyay, (2014) Electrocatalytic properties of in situ-generated palladium nanoparticle assemblies towards oxidation of multi-carbon alcohols and polyalcohols. *Colloids and Surfaces A: Physiochem. Eng. Aspects* 463: 44.

C. H. Liu, A. Yella, B. Q. Li and K. Bandyopadhyay, (2013) Measurement of Light Attenuation in Phantom Tissue Embedded with Gold Nanoshells. *Advanced Materials Research* 647: 232.

Ali Bazzi, Krisanu Bandyopadhyay, Judith Bazzi, and Ogie Stewart, (2012) Analysis of Mineral Water: A General Chemistry Laboratory Experiment. *Chem. Educator* 17: 1.

Service: Professor Bandyopadhyay's service is excellent. Since 2009, he chaired the Natural Sciences Poster Session Committee, and was elected to the Department Executive Committee as Member-at-Large. He served for four years (2007 – 2011). He also served on the CASL Online Learning Advisory Committee, was selected by the provost for the new CASL Dean Transition team, and was elected as a Member-At-Large and later the NSCI representative to the CASL Executive Committee. Professor Bandyopadhyay helped foster deeper and more productive interactions with the Bioengineering Program Committee and participated on a Bioengineering faculty search committee in the College of Engineering and Computer Science. In CASL, he takes part in Strategic Planning. In the Faculty Senate, he served on the P&T Committee, and was a regular in the Vision 2020 meetings. At the national level, Professor Bandyopadhyay reviews for the NSF Nanotechnology Program, and was an NSF-MRI panelist. Besides reviewing for journals such as *Langmuir*, *Colloids and Surfaces A*, *and J. of Nanoscience*, amongst others, he reviews grant proposals, and served on the graduate committees of four students in engineering.

External Reviewers:

Reviewer A: "Bandyopadhyay has proven to be an energetic and consistent performer in the development of nano material fabrication methods and in their use to address modern societal problems. More importantly, his research is having a profound human impact on the students he empowers and encourages."

Reviewer B: "Dr. Bandyopadhyay published some high quality papers that would place him in a very good position relative to other materials chemists at undergraduate or perhaps small master's level chemistry departments. I find his work to be well written and well-thought-out and, overall, of higher quality than many of the journal articles that I have been asked to review over the past several years"

Reviewer C: "I find Professor Bandyopadhyay's scholarly work to be cutting-edge research that capitalizes on his expertise and both broadens his impact as well as provides new avenues for student engagement. His publication record and success at obtaining funding for the acquisition of research instrumentation is exceptional among undergraduate research mentors, and his efforts at seeking research funding are outstanding."

Reviewer D: "I was truly surprised to see that Dr. Krisanu Bandyopadhyay has submitted many research/education/instrumental proposals and has been successful in receiving funding through these highly competitive processes. Given all the workload, this is really remarkable. Dr. Krisanu

Bandyopadhyay has demonstrated his ability to conduct research, has worked to guide and mentor a large number of students, and has been a recognized contributor to ACS and the profession."

Reviewer E: "While I am not a chemist, as an experimental physicist and nanotechnology expert, I found his chosen research topics interesting and worth pursuing. I feel he is doing well compared with the small number of people in these fields who are teaching intensively and working with primarily undergraduates in the research lab."

Reviewer F: "I am quite confident that the papers evaluated here, which detail creative approaches to make new nanomaterials and surfaces and demonstration of their properties, are of high interest to other researchers in the field. In fact, his repeated excellent success in securing grant funding from external agencies for research and equipment attests to the quality of his ideas and the progress of his research in advancing materials science."

Summary of Recommendation:
The Department of Natural Sciences rated Professor Bandyopadhyay's performance as excellent in teaching, research, and service. His research is interdisciplinary, challenging, and demanding. He creatively seeks to understand Nano technological methodologies in physiological/engineering context of the future. The Dearborn campus is very familiar with Professor Bandyopadhyay's many contributions in the classroom, discipline, department, and the campus community. He has made substantial service contributions, valuable to his department, college, and engineering. We are pleased to recommend, with strong support of the College of Arts, Sciences, and Letters Executive Committee, Krisanu Bandyopadhyay for promotion to professor of chemistry, with tenure, Department of Natural Sciences, College of Arts, Sciences, and Letters.

Martin J. Hershock, Dean
College of Arts, Sciences, and Letters

Daniel Little, Chancellor
University of Michigan-Dearborn

May 2016