UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY · DAVIS · IRVINE · LOS ANGELES · RIVERSIDE · SAN DIEGO · SAN FRANCISCO

SANTA BARBARA · SANTA CRUZ

ENRIQUE IGLESIA
Chancellor Professor

DEPARTMENT OF CHEMICAL ENGINEERING
BERKELEY, CALIFORNIA 94720-1462
TEL: (510) 642-9673 FAX: (510) 642-4778
iglesia@berkeley.edu

W. Kenneth Burchett
Eastman Chemical Company
Catalysis Research Laboratory
PO Box 1972
Kingsport, TN 37662

24 September 2009

Reference: Letter of support for the nomination of Joseph E. Baumgartner for the 2011 Chemical Technician Award of the American Chemical Society

Dear Dr. Burchett,

This is a letter in support of the nomination of Joseph E. Baumgartner for the 2011 Chemical Technician Award of the American Chemical Society. He was my direct technical report for a period of about eight years during my tenure as principal investigator and section head for catalysis research at the Exxon Corporate Research Labs. During this period, Mr. Baumgartner performed at the intellectual level of a scientist; he was an equal contributor to the 16 publications that we co-authored during our collaborations at Exxon. In 1993, I left Exxon to join the chemical engineering faculty at the University of California at Berkeley. I note that the offer of a full professorship at Berkeley was made based on my scientific output at Exxon. My publications coauthored with Mr. Baumgartner represented more than 50% of this output and may of them rank today among those most highly cited within my scientific output.

I have continued to track his growth at ExxonMobil through my confidential consultancy with the company for the last 15 years. I will defer to his nominators from ExxonMobil to highlight these contributions in order to ensure that all confidentiality requirements are met. In these last 15 years, I have watched him continue to grow scientifically and personally and to solidify the pattern of dedication and excellence that led to his early success during our work together. I can say without hesitation or exaggeration that Mr. Baumgartner would have ranked among the very best post-doctoral fellows and graduate students with whom I have interacted at Berkeley. This is a large and select group of more than 100 individuals, at least ten of which currently hold academic positions at top universities in the U.S. and worldwide. He is a technician today, instead of a leading Ph.D. researcher in the catalysis field, because of circumstances and history, for the most part beyond his control. He conducts himself with a dedication to science and a rigor in analysis that rivals those of many of my most respected senior colleagues.

Our joint research was challenging in experimental difficulty and in its fundamental mechanistic nature, which became accepted within highly focused projects only after it demonstrated how knowledge contributed to the practical success of important technologies. Mr. Baumgartner made enabling

contributions to our understanding of acid catalysis, critical in FCC and refining processes, of alkane activation and aromatization, and of Fischer-Tropsch synthesis, essential for gas-to-liquids conversion technologies. Concurrently, he contributed to our understanding of the synthesis of exchanged cations in zeolites, dispersed oxides, and metal carbides, the latter in collaboration with the group of Professor Michel Boudart at Stanford. During the latter work, he interacted as an equal with the graduate student working on the project (Fabio Ribeiro), who has gone on to become a leader in heterogeneous catalysis and is currently full professor at Purdue University.

Mr. Baumgartner and I learned together, and roughly at the same pace, about protocols for the use and analysis of isotopic compounds in the probing of mechanisms for catalytic reactions in solids. This required the design of first-of-kind equipment for the efficient handling of the isotopes and for the elimination of hydrodynamic artifacts that clouded the mechanistic conclusions. In a very short period of time, he understood and mastered the full range of skills and knowledge required to apply these methods to a broad range of catalytic chemistries. He understood quite early that the tools developed and the knowledge gained within one project could be transferred to the next in a seamless fashion. He also became quickly a living advertisement for how fundamental knowledge, not often appreciated in the trenches of industrial research, usually became the most effective path to the successful implementation of practical concepts and/or to the solution of operational challenges in the implementation of technology.

I have been impressed from the first day I met him by his dedication and his intellect and by his thoughtfulness and depth. He is quietly brilliant in equal measures in the design of equipment and of experiments and in their execution and the analysis of their outputs. He has always functioned as an equal in helping to address that ultimate and most difficult question that we face as we learn: "what do I do next with the knowledge that I have gained?".

.

Mr. Baumgartner is an excellent example of the self-taught and dedicated scholar. I hope that the selection committee will appreciate (as I do) the scientific talents and the scholarly contributions of this unique individual and consider this nomination with the enthusiasm that I hope I have made clear in this letter.

Sincerely,

Enrique Iglesia
Chancellor Professor of Chemical Engineering,
University of California at Berkeley
Director, Berkeley Catalysis Center
Faculty Senior Scientist, Lawrence Berkeley National Laboratory
Editor-in-Chief, Journal of Catalysis,
Member, National Academy of Engineering
President, North American Catalysis Society

ExxonMobil Research
and Engineering Company
1545 Route 22 East
Clinton Township, Annandale, NJ 08801
908 730 2886 Telephone
908 730 3031Fax
thomas.f.degnan@exxonmobil.com Email

Thomas F. Degnan, Jr.
Manager, Downstream Breakthrough
Technology

ExxonMobil
Research and Engineering

September 4, 2009

W. Ken Burchett
Eastman Chemical Company
Catalysis Research Laboratory
PO Box 1972
Kingstport, TN 37662

RE: Nomination of Mr. Joseph Baumgartner for the 2010 ACS National Chemical Technician Award

Dear Mr. Burchett

ExxonMobil Research and Engineering enthusiastically endorses the nomination of Mr. Joseph E. Baumgartner for the 2009 American Institute of Chemical Engineers Research Technician of the Year Award. Mr. Baumgartner has been a consistent contributor to the technical excellence and technological impact of our research organization for more than 20 years. His collaborations and teamwork have contributed to the success of both science and technology-based projects, both within Corporate Strategic Research, which is where he works, and with affiliate ExxonMobil laboratories. In addition, he has helped create a collegial and collaborative environment within a diverse corporate research community.

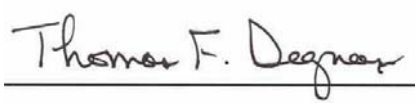
Mr. Baumgartner has also provided some of the clearest evidence for the critical role of fundamental science in technological advances, by contributing scientific concepts and information that have proven useful well beyond an immediate technical question.

Perhaps most importantly to a bottom line focused company, Joseph has made significant contributions in the area of catalyst discovery and development. His work has resulted in nine issued U.S. patents and numerous journal publications in areas critical to energy development.

On behalf of ExxonMobil Research and Engineering, I strongly support this nomination as an opportunity to recognize someone who has consistently been a significant contributor to our research endeavors and continues to serve as a role model and mentor for our younger technician staff members.

Please contact me at (908) 730-2886 if I can expand upon any of the comments I've provided in support of this nomination.

Sincerely,



Thomas F. Degnan, Jr.
Manager, Downstream Breakthrough Technology
ExxonMobil Research & Engineering Co.
Clinton, NJ 08801

Stuart L. Soled
Distinguished Research
Associate

ExxonMobil
Research and Engineering

1545 Rt. 22 East
Annandale, NJ 08801

Sept. 4, 2009

W. Ken Burchett
Eastman Chemical Company
Catalysis Research Laboratory
PO Box 1972
Kingstport, TN 37662

Dear Dr. Burchett:

I am pleased to nominate Joseph E. Baumgartner for the prestigious 2010 ACS National Chemical Technician Award. For over twenty nine years Joe has worked at ExxonMobil's Corporate Research Laboratory. This laboratory is responsible for longer-term research supporting both existing and emerging refining processes. My personal association with Joe spans more than twenty years, and for the last seventeen we have directly worked together. Over this lengthy relationship, Joe's role has evolved from a technical assistant to a trusted colleague and technical collaborator. In practice, Joe functions as a principal investigator in generating ideas, suggesting and executing experiments, critiquing and analyzing data and always approaching the solution to problems in a thoughtful and scientific manner.

Joe has been a significant member of the heterogeneous catalysis community at Corporate Strategic Research. For several years, he was involved in establishing mechanistic details in acid-catalyzed hydrocarbon reactions. Much of this work was done in collaboration with Dr. Enrique Iglesia (now chaired Professor at the University of California at Berkeley) using isotopic tracers and model compound reactions. He not only was responsible for generating this experimental data but he also provided significant insights in analysis and interpretation. This work generated a broad technical understanding with applications in a wide variety of commercially important reactions, such as propane dehydrocyclodimerization, methanol conversion to olefins, paraffin isomerization, alkylation and cracking. Joe presented this work at a national North American Catalysis Society Meeting.

Joe was also involved in the development of ExxonMobil's Gas To Liquids (GTL) technology. He helped elucidate primary and secondary reaction pathways in Fischer-Tropsch reactions, and demonstrated the consequences of olefin readsorption and chain initiation. His characterization work on Exxon's proprietary AGC-21 Fischer-Tropsch catalyst increased our understanding of the structural evolution of these materials through synthesis, pre-treatment and catalytic reactions. The studies describing the changes on stream of Fischer-Tropsch catalysts was recently presented at the North American National Meeting, and there was substantial feedback that this contribution has really helped workers in the field understand this chemistry

better. Joe has received internal Exxon recognition awards for his contributions to moving the AGC-21 program into development.

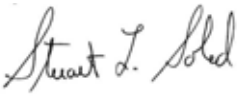
Joe has worked on understanding the behavior of numerous experimental hydroprocessing catalysts, and his work helped move the Nebula™ catalyst to commercial utilization in over 15 refineries worldwide. His current work involves finding enhanced versions of this catalyst using proprietary chemical modifications. He has received an internal ExxonMobil recognition award for this work. The implementation of Nebula is creditied with providing ExxonMobil with an savings over $100 million by removing the need to upgrade hardware configurations in several units in order to meet more stringent legislated sulfur specifications. Joe's work has provided the basis for sixteen refereed publications and 9 US granted and 7 pending patent applications- this testifies to his incredible contributions as a technician.

Finally, Joe has worked directly with several summer student interns at ExxonMobil, providing experimental support, ideas and encouragement. Two of these students have gone on to accept positions after their graduate studies at ExxonMobil and they are now contributing to ExxonMobil's research efforts.

Joe has demonstrated flexibility by working in diverse areas. He is as comfortable and productive in addressing fundamental problems in catalyst structure as he is in working important development issues. His technical skills are continually enhanced by his desire to learn new areas and accept difficult challenges. Joe is a meticulous experimentalist, who has designed, operated, and programmed fully automated microreactor units that are equipped with gas chromatographic and mass spectrometric capabilities. He serves as a resource in these areas within ExxonMobil's Corporate Strategic Research Labs and his help is continually being solicited by other laboratory workers. Because of this he has received an ExxxonMobil peer recognition award on two occassions.

Those of us who have benefited from collaborations with Joe recognize his unusual talent, energy, resourcefulness, and personal qualities that merit nomination for this award.

Sincerely yours,



Stuart Soled