April 8th, 2017

Jane McMahon
Managing Associate
Isaacson, Miller
1600 John F. Kennedy Boulevard
Philadelphia, PA 19103

Re: Vice President for Research, Texas Tech University

Dear Jane and Members of the Search Committee

Thank you for the recent email soliciting my interest in applying for the Vice President for Research at Texas Tech University. After reviewing the position description, the strategic plan for TTU (2010 – 2020), and the significant research and innovation achievements that TTU has accomplished since 2011 I am convinced that the strong trajectory laid out by Chancellor Duncan, President Schovanec, senior academic leadership, by the interim VPR and Deans of the Schools across campus represents an exciting opportunity. The recent appointment of Mike Galyean as the Senior VP and Provost signals the continued pursuit of excellence, student success and innovation leadership. With significant changes likely ahead of higher education, especially public higher education, the imperative to demonstrate the strong connectivity between excellence in academics, research advancements and economic development has never been stronger. The VPR at TTU represents just such an opportunity to build on the recently attained Tier-One status, build on the on-going transformation and deliver to the region, the State of Texas and the country a vibrant research and economic prosperity culture that seamlessly integrates with the academic transformations that are underway.

I currently serve as the Interim Vice President and Vice Chancellor for Research and Technology Transfer at University of Houston (UH) and University of Houston System (UHS) respectively, and have fulfilled that role since early in 2015. I have been very fortunate to have had an inside view of the critical role both disciplinary and interdisciplinary research and technology transfer play in defining the future of the University of Houston. The collective shared vision of the faculty, administrators, leadership and alumni are unquestionably towards raising the research profile of UH. Moreover, when juxtaposed with the ambition of the city, region and state, it is incumbent that UH's continued growth as the research and technology incubation and transfer powerhouse be not accelerated. From the transition of the processes within the Division of Research to robust and integrated electronic processes, to the development of three large proposals competing in national funding competitions for the National Network of Manufacturing Innovation (all three being finalists; and with the decision on the Superconductor Manufacturing Institute still pending), to the launch of the Innovation Center and the affiliated startup laboratories, I have led an organization that is changing rapidly and fulfilling the ambitious growth strategy of UH. I believe my experiences in this role are perhaps most translatable to the opportunities at TTU. The evolving strategic planning in response to the changing research environment both at the State and the Federal arena is critical in defining the research emphasis of TTU. Moreover, the significant focus on translating knowledge creation to economic impact through the innovation hub at TTU, is an opportunity for critical and transformative ideas and impactful execution.

During my interim role, I have continued to serve as the Chief Energy Officer at the UH, a role I took on in early 2013. The UH Energy Initiative and has been identified by Chancellor Khator as one of the "Big Rocks" at UH. Over the last four years, in close coordination with the senior leadership at UH, and the various colleges, faculty and students at UH and the energy industry, we have helped define UH as the "Energy University" through a broad and inclusive *strategic planning exercise*. From the growth of the largest umbrella student organization (Energy Coalition that currently boasts more than 5000 student members), to the interdisciplinary educational programs (including the Energy and Sustainability minor,

Upstream Safety Certificate, Data Analytics Certificate and Masters and the Global Energy, Diversity and Sustainability graduate certificate), to the development of a multi-disciplinary national center focused on offshore exploration and production (in collaboration with Rice U and NASA (JSC)), to the development and delivery of opinion defining symposia on "The Critical Issues in Energy" as well as faculty blogs on Forbes.com, UH Energy has gained momentum. UH Energy has been central in raising resources from Alumni, industry and interested-giving partners to the tune of $13 MM over the last three years. I welcome you to visit our webpage (www.uh.edu/energy) to read more about our efforts and successes.

Previously, I served as Chair of the Department of Chemical and Biomolecular Engineering at UH for four and a half years. Some of the most significant achievements of my tenure as Chair were (i) the inception and growth of the Petroleum Engineering undergraduate program, with the first graduates receiving degrees in summer of 2013 and enrolments growing to ~ 900 students in less than five years of inception; (ii) growth of the Chemical and Biomolecular Engineering faculty from 12 to 20 in addition to the three faculty in Petroleum Engineering, with three women faculty members being added; (iii) four NSF CAREER award recipients in the department; (iv) over $10 MM in fund raising and advancement for the department including raising the lead donation from Conoco Phillips for the Petroleum Engineering building and the development of a successful proposal to the Welch Foundation for the creation of Polymer Center at UH; (v) roughly doubling the number of doctoral students in the department; (vi) development of UH-Methodist Hospital Research Institute Scholar program to attract high quality graduate students interested in translation research; and (vii) establishing strategic and master research agreements with Total Petrochemicals and Shell Petrochemicals.

I have broad experience in the area of multi-disciplinary and inter-disciplinary research, having served as the Associate Dean for Research in the Cullen College of Engineering at UH from 2005 to 2008. During that period we significantly grew the research portfolio in the College of Engineering and took advantage of our strategic location in the fourth largest city with the second largest medical center. In partnership with the Alliance for NanoHealth, we significantly grew the research efforts in the biomedical arena exploiting the significant advances in nanotechnology. We also grew strategic international research collaborations, signing and operationalizing a memorandum of understanding with the East China University of Science and Technology (Shanghai, China) that brought roughly 50 outstanding undergraduate students to UH over five years, and roughly half of them continued as doctoral students at UH. Through strategic and focused research efforts in materials, environmental impact of diesel engines and off-shore wind energy, we saw more than a doubling of research expenditures in the College of Engineering over the five year period: going from roughly $8 MM in 2005 to over $20 MM in 2009, with no substantial change in the number (FTE) of faculty.

Through most of these administrative roles, I have continued to teach at the undergraduate and graduate level. I have not been able to teach over the last year and a half because of the doubling up of my administrative responsibilities in Research and the Energy Initiative. I also have a robust research program in the area of polymers and nanomaterials with two graduate students and three post-doctoral researchers. I strongly believe that as an administrator I must remain actively engaged in teaching and research and lead by example.

My background with interactions in the application of multi-disciplinary research and scholarship in health care, manufacturing, and energy, that represent the most significant challenges facing the US and more broadly humanity for the next century, has provided me a perspective that embraces diversity and focus. The wide-ranging of administrative experience that cross-cut between academic affairs and research & technology transfer at various levels and the successes the institution has enjoyed during and after those periods are testament to my drive to ensure the collective success of the university. I strongly believe that TTU is uniquely poised to advance the intellectual, economic and societal advancement the state, the nation and the world. Especially with the evolving strategic planning of each of the colleges, the

possible re-definition of the State of Texas' priorities for research centers, the evolving federal emphasis on research, and the unique partnership model based innovation ecosystem that is developing at TTU, I believe this is the time for rapid planning and execution with particular emphasis on outcomes. This is an opportunity that I whole heartedly embrace and would be delighted to be given an opportunity to further discuss being able to work with the outstanding faculty, staff members and administration at TTU, and grow the impact of TTU.

Sincerely

Ramanan Krishnamoorti

Ramanan Krishnamoorti

Department of Chemical & Biomolecular Engineering Phone 832-434-3386
University of Houston
Houston, TX - 77204-4004 E-Mail: ramanan17@gmail.com
URL: www.chee.uh.edu/faculty/krishnamoorti/

ADMINISTRATIVE ACHIEVEMENTS

April 2015 – To Date: **Interim VP/VC for Research and Technology Transfer, UH/UHS**

- Managed the Research and Technology Transfer Division with ~ 100 employees, 6 University research centers and total annual research expenditures of ~ $150 MM and annual technology licensing income of more than $28 MM.
- Oversaw the building and growth of five research and innovation buildings including the Multi-disciplinary Research and Engineering Building, the Health and Biomedical Sciences Building 2, Spur 4 Innovation Center, Spur 5 Wetlab Innovation Center and the Energy Industrial Partnership building.
- Developed and executed the growth of the Innovation Ecosystem at the UH Energy Research Park. Currently 11 companies are being incubated at the Spur 4 Innovation Center and 8 companies have established research and pilot scale production facilities at the Spur 5 Wetlab Innovation Center. In collaboration with Stimulating Urban Renewal through Entrepreneurship (SURE) in the Bauer Business School, it is anticipated that over 25 start-up companies in economically disadvantaged neighborhoods will be established over the next three years.
- Developed the Energy Industrial Partnership with an innovative first-in-Texas intellectual property agreement that has allowed for strategic partnerships to be developed with ExxonMobil, Oil India Limited and currently being negotiated with Marathon Oil.
- Identified and recruited five national academy members to UH, of whom three were awarded the Governor's University Research Initiative (GURI) for an additional $ 8.5 MM in research.
- Oversaw the development of three National Network for Manufacturing Innovation (NNMI) proposals with UH as lead (or co-lead). All three proposals raised more than 2:1 matching support for the $70 MM federal program and were finalists for the award. The proposal focused on Advanced Superconductor Manufacturing has received favorable reviews and has been deferred until early spring 2017 for funding decision.
- Established internal programs at UH to support the research and technology endeavor including the Bridge Funding mechanism, the Minor Core Facility program, and DOR Faculty Fellows program.

Feb 2013 – To Date: **Chief Energy Officer**

- Organized and grew the Energy Advisory Board at UH, advising the President of UH regarding energy issues. Recently engaged in Strategic Planning for UH Energy to elevate UH's role in energy. Currently has 25 C-level Executives from the key energy industries. Companies and individuals from the Board have given in excess of $13 MM to UH over the last three years.
- Developed a multi-disciplinary graduate certificate program on Upstream Safety that brought faculty from six colleges together, a certificate program on Global Energy,

Development and Sustainability (GEDS) that worked across four colleges and successfully helped transform the Energy and Sustainability minor to a showcase program in the Honor's college that has students from eight colleges.

- Developed the Subsea Systems Institute, a national research center that focuses on the science, engineering, human factors and regulatory and public policy of deepwater exploration and production. SSI has raised over $ 4 MM in funding and with ~ $ 8 MM awaiting award in late 2017.
- Fostered the growth of the largest student association, the Energy Coalition, with over 3000 members. Key achievements: "Energy Efficient Home Design Competition", the BSEE Technology Challenge for high school students, and the Energy Career Fair.
- Developed "Research First Look" as a showcase of our most outstanding students and faculty to a group of our most generous corporate partners. Over two years we have increased the vanguard companies from 9 to 12.
- Developed and promoted the blog posts of the Energy Fellows featured on Forbes.com (65 blogs and ~250,000 reads).
- Developed and delivered the successful "Critical Issues in Energy" symposium series over four years (4 symposia per year).

Aug 2008 – Feb 2013: **Chair of Chemical and Biomolecular Engineering**

- Creation in 2009 and growth of the Petroleum Engineering program, with current enrolments growing to ~ 900 students.
- Growth of the ChBE faculty from 12 to 19 in addition to the three faculty in Petroleum Engineering; Three women faculty members being added to CHBE.
- Four NSF CAREER award recipients and two DOE CAREER award recipients.
- $10 MM in fund raising and advancement for the department including raising the lead donation from Conoco Phillips for the Petroleum Engineering building and the development of a successful proposal to the Welch Foundation for the creation of Polymer Center at UH.
- Doubling the number of doctoral students in the department.
- Development of UH-Methodist Hospital Research Institute Scholar program to attract high quality graduate students interested in translation research.
- Establishing strategic and master research agreements with Total Petrochemicals and Shell Petrochemicals.

June 2005 – May 2008: **Associate Dean for Research, Cullen College of Engineering**

- More than doubled the research expenditure of the Cullen College of Engineering from ~ $ 8 MM in 2005 to over $20 MM in 2009. This occurred with virtually no change in the head count of the faculty in the college
- Oversaw the establishment of the multi-disciplinary research centers including the Texas Diesel Testing Facility and the Texas Offshore Wind Testing Center at UH.
- Partnered with the Alliance for NanoHealth, to develop core facilities at UH including the cleanroom at UH and the 800 MHz NMR facility.
- Grew strategic international research collaborations, signing and operationalizing a memorandum of understanding with the East China University of Science and Technology (Shanghai) that brought roughly 50 outstanding undergraduate students to UH over five years, and roughly half of them continued as doctoral students at UH.

PROFESSIONAL PREPARATION

Indian Institute of Technology, Madras	Chemical Engineering	B. Tech 1988
Princeton University	Chemical Engineering	Ph.D. 1994
California Institute of Technology	Chemical Engineering	1994-1995
Cornell University	Materials Science	1995-1996

APPOINTMENTS

University of Houston	Assistant Professor of Chemical Engineering	1996-2001
University of Houston	Associate Professor of Chemical Engineering	2001-2005
Rice University	Visiting Faculty of Bioengineering	2003 Spring
ExxonMobil Chem Co.	Sabbatical Researcher	2003
University of Houston	Associate Dean for Research, College of Engineering	2005-2008
University of Houston	Professor of Chemical Engineering and Chemistry	2005-to date
University of Houston	Chair of Chemical & Biomolecular Engineering	2008-2013
Alliance for NanoHealth	Associate Director	2009-2015
University of Houston	Professor of Petroleum Engineering	2011-to date
University of Houston	Professor of Subsea Engineering	2013-to date
University of Houston	Chief Energy Officer	2013-to date
University of Houston	Interim VP/VC for Research & Tech Transfer	2015-to date

RESEARCH INTERESTS

Structure–Processing–Property relations for multiphase polymers with emphasis on Polyolefins, Biomaterials and Nanotechnology; Polymer Thin Films and Interactions with Surfaces; Polymer Crystallinity; Thermodynamics and Viscoelasticity of polymer blends and copolymers; Macro and Nanocomposite Structure and Viscoelasticity; Drug Delivery and Biomedical Applications; Transport of nanoparticles in porous media; Polymer – nanoparticle hybrids for improved dispersant technologies; Nanoparticle modified cements and drilling fluids; High temperature, high pressure, high salinity polymers for oilfield applications.

HONORS

NSF CAREER Award, Division of Materials Research, 1999.

Cullen College of Engineering Junior Faculty Research Award, U of Houston, 2000.

University of Houston Award for Excellence in Research and Scholarship, U of Houston, 2001.

AIChE South Texas Section Award for Best Fundamental Paper, AIChE, Houston, 2001.

University of Houston Award for Excellence in Research and Scholarship, U of Houston, 2005.

Journal of Polymer Science: Polymer Physics Prize, John Wiley, 2006.

Fellow, American Physical Society, 2008.

Cullen College of Engineering Fluor Corporation Faculty Excellence Award, U of Houston, 2012.

University of Houston Award for Excellence in Research and Scholarship, U of Houston, 2014.

Fellow, Neutron Scattering Society of America, 2016

SELECTED PROFESSIONAL ACTIVITIES

Member: AIChE, ACS, APS, Biophysical Soc, ASEE.

Chairman and Co-organizer of dozens of Sessions and Symposia in Technical Meetings.

Referee: Funding agencies (NSF, ACS-PRF, DOE) & Journals (AIChE J., Macromolecules; Chem. Mater; JACS; Polymer; Adv. Mater; Small; Nanoletters; Nature; Science);

Editorial Board: Journal of Polymer Science Part B: Polymer Physics (2001 – to date). Macromolecules (2012 – 2014). Industrial and Engineering Chemistry (2012 – 2016)

Volume Editor: MRS Bulletin Volume Organizer, 2008.

Program Advisory Committee/Beam Time Allocation Committee: NIST (Cold Neutron Research Facility) (2004 – 2008). Chair of Committee: 2007-2008. Since 2008 serve as member of Beam Time Allocation Committee

Steering Committee & Scientific Advisory Board for Alliance for NanoHealth (2005 – to date).

President of Steering Committee of Alliance for NanoHealth (2010 – to date).

Texas Higher Education Coordinating Board's Advisory Committee on Research Programs (2006 – 2016).

External Advisory Committee: Department of Chemical & Biological Engineering, Princeton University; Department of Materials Science and Nano Engineering, Rice University.

Consultant: ExxonMobil Chemical Co; Proctor & Gamble; Dupont Dow Elastomers; Southern Clay Products, Cabot Corp., Mitsubishi Chemicals, Total Petrochemicals

Scientific Advisor: Vertec Polymers Inc., Crystal Fuels Inc.,

PUBLICATIONS: 148 Refereed Publications; Over 9800 Citations; H-index 50

3 Non-Refereed Publications

3 Edited Books

10 Issued US Patents

PRESENTATIONS: 187 Presentations (165 Invited)

EXTERNAL GRANTS: Over $ 16 MM in External Funding

STUDENTS ADVISED

Undergraduate Students (Thesis): 4
Masters Students: 13
Doctoral Students: 18 + 2 (Current)
Post-doctoral Researchers: 11 + 1 (Current)