SUNY The State University of New York

Office of the Chancellor

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MEMORANDUM

November 3, 2016

TO: **Members of the Board of Trustees**

FROM: **Nancy L. Zimpher, Chancellor**

SUBJECT: **Appointment of Dr. Grace Wang as Vice Chancellor of Research and Economic Development**

Action Requested

The proposed resolution approves the appointment of Dr. Jinliu Wang as the Vice Chancellor of Research and Economic.

Resolution

I recommend that the Board of Trustees adopt the following resolution:

> Resolved that the appointment of Dr. Jinliu Wang as Vice Chancellor for Research and Economic Development, effective on or about January 1, 2017, be and hereby is, approved. Dr. Wang will receive a state appropriated salary of $224,000 and a supplemental salary of $71,000 from the Research Foundation for the State University of New York, plus a one year transition allowance of $3,000 per month.

Background

After an exhaustive national search, I am pleased to recommend your approval of the appointment of Dr. Jinliu “Grace” Wang as Vice Chancellor for Research and Economic Development at SUNY System Administration. Dr. Wang currently serves as the Acting Assistant Director of the Directorate for Engineering (ENG) at the National Science Foundation (NSF), where she has been employed since June 2009.

With an annual budget in excess of $800 million at NSF, Dr. Wang oversees day-to-day operations, research, innovation, and education for the ENG, which invests in frontier engineering research and education. She oversees the annual budget, investment portfolio, and staff management. She supports NSF efforts to identify and implement research innovation and education priorities—all with a focus on collaboration and fostering partnerships. Dr. Wang is the NSF representative for the White House's Lab-to-Market interagency group, accelerating research breakthroughs and stimulating economic growth. She chairs the NSF Engineering Revenue Board charged with reviewing large-scale investments and establishing governance policies.

Dr. Wang has held a series of progressively responsible positions at NSF having served as Program Director for Nanotechnology, Advanced Materials and Manufacturing from 2009 until February 2012 and Division Director of Industrial Innovation and Partnership from 2012 until July 2014. She served as ENG Deputy Assistant Director from 2014 until her recent appointment as Acting Assistant Director.

After graduating at the top of her class at Beijing University of Chemical Technology with an MS/BS in polymer science, Dr. Wang pursued her Ph.D. in materials science and engineering at Northwestern University. Graduating with a 4.0 GPA, Dr. Wang joined IBM/Hitachi Global Storage Technologies as an Advisory Development Scientist/Engineer before being promoted to Senior Development Scientist/Engineer. After eight years and a number of successful patents, she was recruited to NSF.

Dr. Wang's vitae is attached.

Jinliu Wang

Education

Northwestern University, Evanston, IL, U.S.A. March 2001
Ph.D., Materials Science and Engineering

Beijing University of Chemical Technology, Beijing, China July 1995
M.S. and B.S., Polymer Materials

Professional Experience

Assistant Director for Engineering (acting) June 2016 to present
National Science Foundation (NSF), Arlington, VA

- Leads the Directorate for Engineering with an annual budget of over $900 million. The Engineering Directorate invests in frontier engineering research and education, cultivates the innovation ecosystem, and develops the next-generation of engineers.
- Serves as a member of the NSF senior leadership team and helps set up foundation-wide policies.
- Led the team to launch a few initiatives to nurture research activities in emerging areas.
- Established a new group within the Engineering Directorate to ensure coordinated and cohesive efforts in supporting data-enabled engineering research, leveraging existing cyberinfrastructure, and advancing research through simulation and modeling.
- Engaged Engineering leadership team and Advisory Committee members to discuss how to systematically seek input from engineering community when setting future research agenda and priorities.

Deputy Assistant Director for Engineering July 2014 to present
National Science Foundation, Arlington, VA

- Worked closely with NSF Assistant Director for Engineering to identify and implement research, innovation and education priorities, and stimulate new, innovative ideas from the Engineering team and research community.
- Played a key role in launching new research, education and innovation programs.
- Initiated the "Forging the Understanding of New engineering frontiers (FUN)" seminar series within the Directorate to stimulate scientific leadership, and provide a brainstorming platform to cultivate a culture of thinking out of box and taking risks to explore high-impact research areas.
- Supported the team to implement strategic initiatives including Critical Resilience Interdependent Infrastructure Systems and Processes (CRISP), Smart and Connected Communities,

Revolutionizing engineering and computer science Departments (RED), and National Nanotechnology Coordinated Infrastructure (NNCI) programs.

- Chaired the Engineering Review Board (ERB) that reviews the large-scale investment by Engineering Directorate including Engineering Research Centers. Established a guideline and procedure to clarify the roles and responsibilities of ERB members and set clear expectations to both ERB members and program teams.
- Promoted a culture of "results-driven" Engineering Research Center management efforts by empowering the team to lay out clear, actionable and practical management plans to address Center's major weaknesses and issues.
- Enabled a team effort to assess impact of research investment through leveraging existing tools, technologies and methodologies.
- Represented NSF in the White House's Lab-to-Market interagency group and led the efforts in entrepreneurship education. Wrote a white paper to outline the challenges, opportunities, and approaches in experiential entrepreneurial education for the Administration.
- Helped organize and participated in the first White House Demo Day to promote inclusive entrepreneurial culture across the nation.
- Managed the operation of over $900 million annual budget and investment portfolio that covers engineering research, innovation, and education in a broad range of technical areas.
- Led the effort to systematically review the Directorate's investment portfolio on annual basis and document the analysis which helped ensure continuity during program directors' transitions, and stimulated intellectual leadership.
- Co-led the efforts to standardize the processes for effective coordination of Foundation-wide initiatives.
- Led the efforts to streamline and standardize the compliance checking criteria and processes. Significantly reduced staff's workload and improved transparency to the research community.
- Led the team to set up an outreach and media plan. Encouraged the team to explore and experiment new approaches.
- Successfully recruited and on-boarded six executives within 14 months and ensured a smooth leadership transition for the Directorate.
- Identified and initiated an employee enrichment program to engage both administrative professionals and scientific staff in learning about communication, teamwork, self-awareness, self-responsibility, individual productivity, and emotional intelligence.
- Led the efforts to establish a hiring strategy for the Directorate, and started to implement the strategy to minimize gaps during staff transitions and ensure high-quality hires.

Division Director February 2012 - July 2014
Division of Industrial Innovation and Partnerships (IIP)
Directorate for Engineering
National Science Foundation, Arlington, VA

- Oversaw about $200 million annual budget and an investment portfolio that covers broad topic areas including advanced materials, manufacturing, chemical technology, biomedical technology, biotechnology, information and communication technology, electronic devices and systems, and education technologies.

- Initiated and led the team efforts to restructure the Building Innovation Capacity (BIC) program by focusing on translational research of Smart Service Systems.
- Led the team to restructure and scale up a translational research program, Accelerating Innovation Research (AIR), to better serve the needs of research community and stimulate entrepreneurial thinking among faculty members and students. The new AIR program was well received by the community and the proposal submission was significantly increased.
- Emphasized Small Business Innovation Research (SBIR) program strategy to focus on high-risk technology startups by fostering entrepreneurship and catalyzing technology commercialization. Launched "Beat-the-Odds Entrepreneurial Boot-camp" in 2013 to provide hands-on entrepreneurial education. To date, over 600 small businesses have received the training.
- Enabled and supported the revision of Intellectual Property agreement template for Industry/University Cooperative Research Centers (I/UCRC) program to include the options of Open Access and Public Domain, providing more flexibility to research centers and their stakeholders.
- Launched a systematic effort to partner with selected organizations to leverage their networks. Established over 35 partnerships and supported over 200 small businesses to participate in events hosted by these partners to connect small businesses with market realities.
- Leveraged over $200 million funding from private sectors and other public organizations in two years.
- Recognized the importance and urgency of cultivating entrepreneurship for millennials. Supported the team to launch a series of social media activities to reach out to budding entrepreneurs.
- Initiated and supported the team to redesign the division websites to convey a clear message and minimize the usage of NSF jargons in order to better connect with the entrepreneurial community.
- Expanded the utilization of virtual peer-review panels and webinars, providing more flexibility to both Program Directors and external reviewers.
- Led the team efforts to streamline proposal processes, which shortened the process time of SBIR Phase II proposals by about 1 month.
- Enabled the team to establish best practices for University-Industry partnership programs to ensure consistent and high-quality due diligence for decision making.
- Organized and hosted a "Science Means Business" event on Capitol Hill, which was very well received by Congressional representatives and staffers.
- Recruited 5 SBIR Advisory Committee (AdCom) members to ensure the background and expertise of AdCom members reflect the profiles of major stakeholders.

Program Director June 2009 - February 2012
Nanotechnology, Advanced Materials and Manufacturing, SBIR/STTR Program,
Division of Industrial Innovation and Partnerships (IIP)
Directorate for Engineering
National Science Foundation, Arlington, VA

- Performed due diligence on over 90 small businesses to evaluate the teams, technologies, market potentials and business strategies. Made about $22 million in investments accordingly.
- Actively managed about 60 awards each year by providing advice to small businesses on team building, technology roadmap, and business and financing strategies.

- Restructured SBIR/STTR Phase II Grantees Conference in 2011 by introducing a strong focus on entrepreneurial education to the conference.
- Initiated a Photovoltaic (PV) Manufacturing Workshop. The workshop identified technical and business challenges in the solar industry and provided strategies to accelerate the commercialization of solar technologies. The workshop results were published on JVST A (Journal of Vacuum Science & Technology A). The article was the #1 most-downloaded article of JVST A for four months in a row after its publication.

Senior Development Scientist/Engineer May 2006 - May 2009
Hitachi Global Storage Technologies, San Jose, CA

- Successfully launched all products on or ahead of schedule.
- Co-invented a thin-film structure that solved corrosion problems in magnetic media. Implemented across all existing products.
- Studied ultra-thin diamond-like thin-film overcoat. Reduced overcoat thickness by more than 40% with improved mechanical performance.
- Designed a magnetic recording thin film structure that improved signal-to-noise ratio by a factor of 3X.
- Developed a process to improve process throughput of magnetic recording media. Lowered cost per unit by 12%.
- Co-invented a hardware design for thin film deposition system to reduce particulate contamination by a factor of 400X. Reduced hard-disk drive failure rate by a factor of more than 100X.
- Initiated and implemented the concept of using isotropic substrates in Perpendicular Magnetic Recording (PMR) media. Lowered substrate cost by 15%.

Advisory Development Scientist/Engineer May 2001 - April 2006
IBM/Hitachi Global Storage Technologies, San Jose, CA

- Project leader for the mechanical design of the first-generation Perpendicular Magnetic Recording (PMR) media. Led the efforts to study the mechanisms and develop novel technologies to address poor mechanical properties of PMR media. Successfully launched the technologies into the product, which was cited by customers as the PMR product with the best mechanical performance on the market.
- Established a laboratory to focus on the study of lubricant-related head-disk interface behaviors. Provided insights into future lubricant design.
- Studied the mechanism of disk "smear", a common cause of failure in hard-disk drive. Proposed, verified, and implemented a solution that reduced product failure rate by a factor of 100X.
- Co-invented a lubricant system to reduce head-disk interaction. Implemented in the product.
- First observed that disk nano-roughness is a key factor that affects head modulation and to conclude that reductions in disk nano-roughness lead to less head-disk interactions.
- Discovered an effective, efficient, and quantitative method to determine substrate surface texture. Provided a reliable and repeatable method for characterization.

- Assigned to Shenzhen, China to resolve a technical crisis. Led the local team to analyze the problem; within two weeks, identified and executed effective measures to solve crisis.
- Assigned to IBM Mainz, Germany to facilitate communication between IBM Germany (contract supplier) and Hitachi US/Japan teams to address a business crisis. Determined root causes of communication impasse and contributed vitally, as a member of the U.S. team, to solution, which yielded immediate improvements in cross-cultural communications. Solved the problem promptly and avoided impact on revenue generation.

Research Assistant
Northwestern University, Evanston, IL

- Discovered, via surface science techniques, the mechanism responsible for enhancements in the ductility of Ni_3Al–based intermetallic compounds through boron doping (NSF funded).
- Successfully synthesized crystalline alumina thin films at 340ºC (instead of ~1000ºC before this work) using reactive magnetron sputtering (PVD), enabling its more widespread applications.

Awards

- 2016 Women in Engineering Leadership Award, CCNY Society of Women Engineers 2016
- Early Career Achievement Award, Northwestern University 2015
- Director's Award for Program Management Excellence, NSF 2011
- Patent Invention Awards, Hitachi 2008 – 2009
- Long-term Incentive Award, Hitachi 2007
- Leadership Development Program, Hitachi 2006
- Long-term Incentive Award, Hitachi 2005
- Stock Option Award, IBM 2002
- Technical Leadership Program, IBM 2002
- Cabell Fellowship, Northwestern University 2000
- Scholarship of Chinese Chemical Engineering News 1995
- DuPont Scholarship (one of the first two Chinese students to win this scholarship) 1993
- Scholarship from Jilin Chemical Engineering Corporation 1992

Patents

- Lubricant composition for magnetic media, US 7510999 B2.
- Carbon beam deposition chamber for reduced defects, US 20070137063 A1.
- Dual oxide recording sublayers in perpendicular recording media, US 20100110584 A1.
- System, method and apparatus filament and support used in Plasma-Enhanced Chemical Vapor deposition for reducing carbon voids on media disks in disk drives, US 8028653 B2.
- Perpendicular magnetic recording media having a cap layer formed from a CoPtCr alloy, US 20100073813 A1.
- Magnetic recording capping layer with multiple layers for controlling anisotropy for perpendicular recording media, US 8202636 B2.

- Perpendicular recording media with sublayers of oxide dopant magnetic materials, US 8168309 B2.

Publications

- J. Wang, B. Zhou & Y.-W. Chung, "Water Dissociation on Boron-Doped Single Crystal Ni_3(Al,Ti)(110) Surface", *Advanced Materials for the 21st Century*, TMS, 1999.
- J. Wang & Y.-W. Chung, "Interaction of H_2O and O_2 with Intermetallic Alloys", *Trans. Nonferrous Met. Soc. China*, 9, suppl. 1, 1999, 100.
- J. Wang, W. J. Chia, Y.-W. Chung & C. T. Liu, "Interaction of H_2O and O_2 with Ni_3Fe and Their Effects on Ductility", *Intermetallics*, 8, 2000, 353-357.
- J. Wang & Y.-W. Chung, "Water Dissociation on Clean and Boron-Modified Single Crystal Ni_3(Al, Ti) (110)", *Journal of Physical Chemistry*, B104, 2000, 3219-3223.
- J. Wang & Y.-W. Chung, "Effects of Boron on Water Dissociation and Surface Diffusivity of Hydrogen on Ni_3(Al,Ti)(110) Single Crystal Surfaces", *Intermetallics*, 9, 2001, 349-354.
- J. Wang, Y.-H. Yu, S. C. Lee & Y.-W. Chung, "Tribological and Optical Properties of Crystalline and Amorphous Alumina Thin Films Grown by Low-temperature Reactive Magnetron Sputter Deposition", *Surface Coating and Technology*, 146/147, 2001, 189-194.
- R.J. Waltman, G.W. Tyndall, J. Wang & H. Deng, "The Effect of Solvents on the Perfluoropolyether Lubricants Used on Rigid Magnetic Recording Media", *Tribology Letters*, 16, 2004, 215.
- C. M. Mate, P. C. Arnett, P. Baumgart, Q. Dai, U. M. Guruz, B. E. Knigge, R. N. Payne, O. J. Ruiz, J. Wang, and B. K. Yen, "Dynamics of Contacting Head-disk Interfaces", *IEEE Transactions on Magnetics*, Vol. 40, No.4, Jul. 2004, 3156-3158.
- K. Tang, K. Takano, G. Choe, G. Wang, J. Zhang, X. Bian and M. Mirzamaani, "A Study of Perpendicular Recording Media with Exchanged Coupling Layer", *IEEE Transactions on Magnetics*, Vol. 44, No. 11, Nov. 2008, 3507-3510.
- R. Waltman, H. Deng, J. Wang, H. Zhu and G.W. Tyndall, "The Effect of PFPE Film Thickness and Molecular Polarity on the Pick-Up of Disk Lubricant by a Low-Flying Slider", *Tribology Letters*, Vol. 39, No.2, 2010, 211-219.
- W. Lee, W. Chia, J. Wang, Y. Chen, S. Vaynman, M. Fine and Y.-W. Chung, "Role of Surfaces and Interfaces in Controlling Mechanical Properties of Metallic Alloys", *Langmuir*, 26(21), 2010, 16254-16260.

Editor

- Encyclopedia of Tribology, Section Editor for Surface Characterization, Springer, 2013.

Other

- Member, Advisory Board, Department of Materials Science and Engineering, Northwestern University.