EXECUTIVE SUMMARY

Item Name: **Appointment of Regents Professors for the University of Arizona**

☒ Action Item

Requested Action: The University of Arizona asks the board to approve the appointment of six Regents Professors: Steven Archer (Natural Resources & the Environment); Sonia Colina (Spanish & Portuguese); Marwan Krunz (Electrical & Computer Engineering); Dante Lauretta (Planetary Sciences/Lunar & Planetary Laboratory); Sallie Marston (Geography & Development); and Ian Pepper (Environmental Science).

Background/History of Previous Board Action

The University of Arizona requires all nominations for Regents Professor to come from groups of tenured faculty members and to be reviewed by an Advisory Committee. After this process, the president considers the recommendations provided from the committee and decides which names should be submitted for the board's consideration.

Discussion

On this occasion, six names are recommended. Each individual has the full support of the Advisory Board and the president.

Steven Archer (College of Agriculture & Life Sciences)
Professor Archer's research has concentrated on interactions between grasses and woody plants in relation to soils, climate, and land use through a broadly-based research program using remote sensing, geographic information system (GIS) mapping technology, dendrochronology, and stable-isotope chemistry. The results have enabled him to reconstruct vegetation history and to quantify and predict the consequences on sustainability of grazing systems, ecosystem biogeochemistry, and land surface-atmosphere interactions.

Professor Archer's research has substantively advanced our ecological understanding of grass-woody plant dynamics and underpin the secondary succession paradigm of cover and land use in drylands. Professor Archer's accomplishments have been recognized by the Chapline Research Award of the International Society for Range Management (2019); Fellowship in the Ecological Society of America (2016); and Fellowship in the American Association for the Advancement of Science (2009).

An additional strength of Professor Archer is his unique ability to translate his research in rangeland management to university extension agents so that they can then transmit

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the information to ranchers, conservationists and the general public. This is an important contribution to the Land Grant Mission of the University of Arizona. Professor Archer served as the lead author of the Arid Lands Section of the U.S. National Climate Change Science Synthesis/Assessment Product 4.3.

Sonia Colina (College of Humanities)
Professor Sonia Colina, a linguist in the Department of Spanish and Portuguese in the College of Humanities and the director of the National Center for Interpretation, has amassed an exemplary record of internationally recognized, groundbreaking, interdisciplinary scholarship. She is a "twin hitter" scholar. She is an expert in two fields, theoretical phonology and translation studies. Her work in the latter has scholarly and literary implications. It extends outward into medical and social services and social justice, which is of paramount importance at our Hispanic Serving Institution and in Pima County, where Hispanics make up 37.6% of the population.

Professor Colina's single-authored 2009 book, *Spanish Phonology: A Syllabic Perspective*, is considered the most significant contribution to the discipline in the 21st century, serving as an "enduring source of reference" for scholars and students alike.

Dr. Colina's research has had a significant impact on the health sciences and other sciences, including audiology. She has affiliate status in the Department of Speech, Language and Hearing Sciences in the College of Science and was the co-PI or collaborator on numerous national and international research grants, including the $1.9 million grant entitled "Reducing Disparities in Access to Hearing Healthcare on the U.S.-Mexico Border" from the National Institute on Deafness and Other Communication Disorders of the NIH. She served as co- investigator for the $1.4 million grant "Data-driven Text Simplification for Health Information" from NIH to the Department of Management and Information Systems in Eller College, which also resulted in several multi-author publications and a computer application. In 2008, with support from the Robert Wood Johnson Foundation, she designed a research-informed evaluation tool to assess the quality of translations produced in the healthcare field. In recognition of her work, she was awarded the 2009 National Hispanic Medical Association's National Leadership Award.

Professor Colina's work and recognition extend far beyond academic circles. She has served as an academic advisor for the Robert Wood Johnson Foundation, the National Weather Service, and the National Medical Spanish Taskforce, and as an expert advisor and scientific committee member for the Research Institute of U.S. Spanish.

Marwan Krunz (College of Engineering)
Professor Marwan Krunz's research was pivotal for providing guarantees of quality of service for Internet-streamed video. He broke new ground with a concept known as statistical multiplexing, which resulted in the ability to stream hundreds of different video-based media from the same server to thousands of Internet users. To determine

the effective bandwidth and storage requirements per stream, Professor Krunz provided one of the most accurate statistical models for compressed video in use today. Without his innovations, services such as Zoom, Netflix and others would not be effective.

His accomplishments extend to wireless communications, where his theoretical models serve as the basis for the design of wireless systems, with far-reaching impacts on technologies such as Wi-Fi, LTE/5G cellular systems, Internet of Things systems, and smart vehicular

communications. His contributions to wireless technologies have had far-reaching societal impacts in bridging the digital divide between urban and rural communities. For instance, his latest effort toward developing a smart 5G wireless repeater (a device prototyped by two startup companies that licensed the technology from the University) will extend 5G coverage to rural and sparse communities, including tribal nations in Arizona.

Professor Krunz's professional service and extramural activities are no less impressive than his research. He has chaired top-tier conferences and served on major editorial boards. He is a frequent keynote speaker around the globe. In recognition of his service, the IEEE Communications Society awarded him the 2012 Outstanding Service Award. His dedication to the University's mission is extraordinary, as evidenced by his significant service on many committees at the department, college, and university levels. Marwan Krunz brought and continues to bring high visibility to the University by directing two industry-focused research centers over the past 13 years.

Dante Lauretta (College of Science)
As Principal Investigator of the OSIRIS-REx mission to collect and return material from the asteroid Bennu, Professor Dante Lauretta has been prominent in the news. OSIRIS-REx is not only the largest sponsored project ever conducted at the University of Arizona, but it also will yield fundamental knowledge about the origin of the terrestrial planets. Leadership of this project alone would qualify Lauretta to be promoted to Regents Professor. However, he has done much more.

In 2002, very early in his career, Lauretta was awarded the Alfred O. Nier Prize of the Meteoritical Society for "his experimental studies of iron-bearing sulfide formation in the solar system." Sulphides play a critical role in the condensation of solids from the nebula of gas where the solar system formed. Along with various cohorts of his students, he also worked on transport of material in the solar nebula, on the possibility of a meteorite source for the phosphorous necessary for life on Earth, and on the chemical processes occurring within asteroids early in their history. Despite this huge range of topics, Lauretta's papers explore their topics thoroughly; many are highly cited, and they often have provided the impetus for later papers, sometimes led by Lauretta and sometimes by his former students. For this work, he has received a Kavli fellowship and was recognized by *Discover* magazine in 2004 for a top-100 science discovery.

In addition to his research, Lauretta has successfully taught at all levels, from undergraduate General Education to graduate classes, and in all formats, from large-audience lectures to small seminar classes (including a TEDx talk). He won a University College of Science Distinguished Early Career Teaching Award in 2006. He has an exceptional record of service, including on advisory boards for both the College of Humanities (his undergraduate majors included Oriental Studies) and the Honors College.

The combination of studying the early solar nebula, the origin of life on Earth, and processes occurring on small bodies, coupled with the ability to master different analytical and theoretical techniques, shows the kind of breadth of intellectual curiosity that has allowed Lauretta to lead OSIRIS-REx, an ambitious spacecraft mission with wide-ranging goals that build on his career long interest in the chemical processes that shaped the planets in the early Solar System. He has been working on this project since 2004, and it recently acquired the sample, which will be delivered to Earth in 2023. Being PI is in many ways a leadership position, and he is an excellent leader, as frequently noted by NASA through multiple Group Achievement Awards.

Sallie Marston (College of Social & Behavioral Sciences)
Dr. Sallie Marston is most noted for her groundbreaking work on citizenship, public space, and social reproduction. Aside from her scholarly articles, she has written one of the most widely used textbooks in her field. In 2013, she was honored with the Lifetime Achievement Award from the Association of American Geographers, a most distinguished honor in her discipline.

Throughout her career as a geographer, Professor Marston has contributed seminal works in her field. She is noted for her early work on the understanding of space and distinct populations. Her highly regarded article published in 1990, “Who Are ‘The People’?: Gender, Citizenship, and the Making of the American Nation,” looks at the relationship produced by public places and public spheres and the exclusionary powers such spaces can create. She considers historic gender exclusion of women in the private domestic sphere and extends this discussion to the LGBT population and their right to participate in the New York City St. Patrick’s Day Parade.

In addition, her critical work on scale is acclaimed both nationally and internationally as adding new dimensions to the study of geography. Her 2000 article “The Social Construction of Scale” brings attention to the fact that homes and neighborhoods are often ignored. Her research and publications have brought her international acclaim, and she has had numerous international speaking invitations, including several from the United Kingdom. She has presented lectures at Queen Mary London University, University College London, Durham, Nottingham, and Southampton, and at the Institute of British Geographers’ annual conferences. She has been an active member of

editorial boards for a number of international journals, including Progress in Human Geography and the Annals of the Association of American Geographers.

Dr. Marston's stellar accomplishments have afforded her an international reputation, but at the same time, she is noted for her research in the Tucson community. In particular, the People's Geography Project is funded by a matching grant from the Agnese Haury Challenge Grant Program. The Project's centerpiece is the Community and School Garden Program, which promotes community-engaged scholarship through gardens for lower-income students and thus makes the study of geography relevant to community members.

Ian Pepper (College of Agriculture & Life Sciences)
Dr. Ian Pepper is a locally, nationally, and internationally renowned environmental microbiologist who has worked at the interface of human health and soils, potable water, and municipal wastes. A faculty member in the Department of Environmental Science at the University of Arizona for over 40 years, he is heralded for his basic and applied research, his exemplary efforts to train the next generation of scientists, and his public- and private-sector collaborations that further science-based decision making.

Dr. Pepper has focused on the fate and transport of pathogens in air, water, soils, and municipal wastes. He helped establish and has been connected to the National Science Foundation's Industry/University Cooperative Research Center on Water Quality for over 30 years. The list of research centers he has led includes the Water Quality Center, the Environmental Research Laboratory, and, most recently, the Water and Energy Sustainable Technology (WEST) Center. Co-located on the campus of the Agua Nueva Water Reclamation Facility, the WEST Center is an innovative partnership with Pima County and a unique laboratory for the study of treated wastewater.

There is no better example of how Dr. Pepper has impacted addressing real-world problems than his successful efforts to identify and quantify the COVID-19 virus in waste flows from University dormitories. His team's "wastewater-based epidemiology," which enabled the University to avoid a major campus outbreak, has been implemented in many other locations. Their methodology was quickly shared through media interviews and popular press.

Dr. Pepper's collaborative research and educational contributions, including authorship of multiple textbooks, have been recognized by numerous societies. He has been inducted as a Fellow by the Soil Science Society of America, the American Society of Agronomy, the American Academy of Microbiology, and the American Association for the Advancement of Science. Very recent awards include the 2019 Extraordinary Faculty Award from the UA Alumni Association and the 2020 Graduate Teaching and Mentoring Award from the UA Graduate College.

Statutory/Policy Requirements

ABOR Policy 6-208 permits the rank of Regents Professor to be awarded only to full professors with exceptional achievements that have brought them national or international distinction. This highest of faculty ranks may be awarded to no more than three percent of the total of tenured and tenure-track faculty members.