

EXECUTIVE SUMMARY

ACTION ITEM: Appointment of Regents' Professors

ISSUE:

The University of Arizona requests the Board's permission to promote three faculty members to the rank of Regents' Professor: Malcolm Hughes, Michael Marcellin, and Ofelia Zepeda.

BACKGROUND:

- The 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 and/or international distinction. This highest of faculty ranks may be awarded to no more than three (3) percent of the total tenured and tenure-track faculty members.
- The University of Arizona requires all nominations for Regents' Professor to come from groups of tenured faculty members. An Advisory Committee reviews all nominations. Then the President considers the recommendations provided from the committee and decides which names should go forward for the Board's consideration.
- On this occasion, three names are recommended. All three individuals have the unqualified support of both the Advisory Committee and the President.

Professor Malcolm Hughes: Global Warming is one of the hottest issues being discussed all over the world. Yet few Arizonans realize that one of the world's foremost scientists in the field of Dendroclimatology is here at The University of Arizona. Malcolm K. Hughes is at the forefront of the scientific group using tree-ring data to understand global changes in temperature and precipitation over the past three thousand years. Dr. Hughes' collaborative research with Michael Mann of the University of Pennsylvania and Raymond Bradley of the University of Massachusetts dropped a bombshell in the area of climate change when first published in 1998, revealing that the later twentieth century was the warmest period on earth for at least the past thousand years. The United Nations Intergovernmental Panel on Climate Change reviewed and accepted the earth-shaking evidence. Soon their work led to world-wide acclaim plus grants of over a million dollars a year for the past five years for Dr. Hughes.

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His research also has led to personal attacks on him from politicians and some other members of the scientific community. These bitter assaults, expressed frequently in the Wall Street Journal, were usually based on preconceived ideas rather than hard scientific data. Dr. Hughes was even the subject of investigations by some members of the U.S. Congress who sought to challenge his climatological research on the study of larches, bristlecone pines and sequoias. To answer the allegations, a national conference was specially convened by the National Academy of Sciences at which a panel of 12 of the nation's leading scholars of climatology reported that they supported the conclusions reached by his research. Recently, the work of Mann, Bradley and Hughes formed much of the core of the documentary film *An Inconvenient Truth*, narrated and presented by Al Gore and recently nominated for an Academy Award.

Dr. Hughes' leadership for 12 years of The University of Arizona's Laboratory of Tree-Ring Research, his desire to internationalize his field, and his determination to obtain scientific data that is not just research for the sake of research but rather something fundamentally relevant have turned The University of Arizona into one of the scientific centers for the world-wide understanding of global warming. At Arizona his development of the Institute for the Study of Planet Earth, his interactions with scholars from all over the world who have come to Arizona to learn from him, his mentoring of graduate students, and his offering of introductory courses in dendrochronology to freshman undergraduates have contributed fundamentally to the global importance and integrity of our university. He is much sought after for his teaching, writing, international collaborations, especially with scientists from the former Soviet Union, and residency awards such as the distinguished Bullard Fellowship at Harvard University.

Dr. Laura E. Conkey of the Dept. of Geography of Dartmouth College has stated: *"Malcolm's work has brought him and the important techniques of Paleoclimatological analysis to international attention and he serves as a critical voice of scientific reason in the now politically charged atmosphere of climate change research. His impact is huge. Many of the rest of us in the field look to him for inspiration and guidance."* Dr. Lonnie Thompson of the Byrd Polar Research Center adds: *"Professor Malcolm Hughes has been an intellectual leader in the reconstruction of the earth's Quaternary climate history and a prominent figure in dendrochronological education."*

As politicians and scientists all over the world debate the future of our planet and what kind of world we will leave for future generations to encounter, the work of Malcolm K. Hughes will be in the forefront of their discussions. He most certainly deserves to be named Regents Professor.

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Professor Michael Marcellin: The next time you go into a movie theater, if you are dazzled by the brilliance of color, the quality of the image, the lack of flicker in the film, and the symphonic sound quality, it is likely to be because you are viewing a new form of film, one digitized and compressed by a new method that not only competes with, but also surpasses celluloid film. The new method, adopted after a worldwide competition of all the major digital audiovisual producers, was developed recently by a team led by Professor Marcellin of the Department of Electrical and Computer Engineering at The University of Arizona, the winner of the competition. Professor Marcellin's submission, based on a data compression technique named JPEG 2000 to which he was a major contributor, outpaced all other competitors with unprecedented image and color quality. As movie theaters and movie studios set up facilities for recording and playing films digitized and compressed by this new method, viewers will be exposed to a video and audio experience of a quality previously afforded only to the few Hollywood moguls who owned the first copy of the film master. Conversion of all major theaters in the U.S. could be finished in 3 to 5 years, with Europe and the rest of the world following soon after.

But the new image-compression standard is not just limited to movies. It is widely expected to become a broadly applied standard for all images and audiovisual products for at least the next decade and already has been incorporated into over 300 commercial products, such as video cameras, cell phones, and archival storage at the Library of Congress and the American Museum of Natural History, and has been selected to be the standard for a number of medical imaging applications, including Computed Tomography and Magnetic Resonance Imaging.

As his nomination letters state, the development of Professor Marcellin's ground-breaking method that led to the new JPEG2000 standard required fundamental advances in a very broad range of aspects of image manipulation and compression. Indeed, Professor Marcellin's breakthrough contributions to the JPEG2000 standard already were rooted in his Ph.D. research, in which he solved a 40-year-old problem in information theory by *"developing the groundbreaking method of 'trellis coded quantization' which was a brand new superb idea and stimulated significant research by others in the field."* Following this, Professor Marcellin made new seminal contributions to techniques that mitigate the occurrence of errors in digital information. This was followed by the "pioneering work in image compression" that received international acclaim and eventually culminated in the development of the ISO Standard JPEG 2000. His book on the subject, co-authored with David Taubman, presents not only a discussion of the standard, but also the underlying theory, and a discussion of the benefits of the various approaches followed. The first printing sold out in three weeks, and the book is currently in its fourth printing. It has been translated into Chinese and Korean, and Polish and Japanese translations are under consideration.

Professor Marcellin has received numerous awards in recognition of his excellence in research and scholarship, including election as a Fellow of the Institute of Electrical and

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Electronics Engineers (IEEE), appointment to the John M. Leonis Distinguished Professorship, recipient of awards from the International Standards Organization (ISO) and the International Committee on Information Technology Standards, recipient of The University of Arizona Technology Innovation Award, and election to the Distinguished Engineering Alumnus at San Diego State University.

Professor Marcellin is a brilliant teacher. His nomination dossier includes abundant praise, such as: “*it is the best course I have ever taken from the best professor I have seen.,*” “*incredibly good lecturer,*” “*best instructor in the universe,*” and “*the best teacher one can have in his life.*” These accolades have led to outstanding-teacher awards on numerous occasions. During his tenure at The University of Arizona, he has graduated 17 M.S. and 15 Ph.D. students. To this we add his extensive extra- and intra-mural service with the Transactions of the IEEE on Image Processing as associate editor, chairing conferences, workshops and short courses, and service to the Applied Mathematics GIDP, the College of Optical Sciences, Soil, Water and Environmental Sciences, Arid Lands, Natural Resources, Radiology, Ophthalmology, the Lunar and Planetary Laboratory on the Mars Reconnaissance Orbiter Project, and The Center for Creative Photography.

Professor Ofelia Zepeda:

Rain (excerpt)

*The sun has moved down that way a bit,
And yet it is so hot.
All movement has almost stopped.
A fly goes by so slowly,
everything has slowed down.*

Ju:ki (excerpt) [See note on next page.]

*'Im 'at hu 'i-e-ju: g ta
kia, a'i si s-ton
we:s ha'icu 'an 'a 'i pi hoiñag
mumuwal s-ba:big 'an da'a
we:s ha'icu 'at 'i-e-ba:bigi.*

The words above – whether in English or in Tohono O’odham – vividly evoke the enervating heat of a world pausing to hope for rain in an Arizona summer. These words, and those in Ofelia Zepeda's other poems and essays, are “*simply beautiful, riveting work...instrumental to the development of a whole field of Native American literature...Dr. Zepeda’s clear poetic voice is one of the most prominent and listened-to in the field*” (Teresa McCarty, Arizona State University).

Poetry is only one way Professor Zepeda works to inspire appreciation of the Tohono O’odham language, along with her many other efforts to preserve and revitalize the many endangered languages of the world. She was a key player in steering through the U.S. Congress the 1990 Native American Languages Act, “*which reverses 200 years of federal language policy*” (Teresa McCarty, ASU) and gave hope to indigenous language activists around the world. As co-founder and long-time director of the American Indian Language Development Institute (AILDI), an annual summer institute where American Indian teachers

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learn about language teaching and the development of revitalization/instructional materials, Professor Zepeda has overseen the training of more than 2,000 students, almost all of them Native Americans working in their tribal communities. AILDI is *“the first and is still the biggest training program for people doing indigenous language education....[Zepeda] is one of the leading figures in language revitalization, in both publication and action”* (Leanne Hinton, University of California, Berkeley). *“I know of no other comparable organization internationally which has had the same reach and influence”* (Stephen May, University of Waikato, New Zealand). Professor Zepeda is *“a major figure in the field of endangered language documentation and maintenance who has developed and implemented a large number of projects and initiatives to support speech communities whose languages and cultures are in danger of disappearing.”* (Nikolaus Himmelmann, University of Bochum, Germany) *“Her position and influences...acts as a powerful role model for colleagues, peers and students alike, particularly in light of the significant challenges that still exist for many indigenous students...The academic reach and influence of Professor Zepeda is palpably beyond question”* (Stephen May, University of Waikato, New Zealand).

In addition to her creative poetry and the scholarly and outreach contributions to language revitalization, Professor Zepeda is *“clearly one of the most prominent contemporary linguists dealing with American Indian descriptive linguistics...the urgent task of an American Indian linguist is precisely what characterizes Ofelia Zepeda’s work...[which] ranges...from phonetics and phonology to discourse and verbal art, and includes attention to sociolinguistic variation and social and cultural context. She is a model for others to follow.”* (Joel Sherzer, University of Texas at Austin).

In three discreet domains, Professor Zepeda is an innovator, a leader, a model to emulate. A nationally and internationally renowned poet; a world leader in language revitalization (both in publication and in action); a linguistic scholar whose work is a staple of discussion and debate in the field; a MacArthur Fellow: Professor Ofelia Zepeda richly deserves the honor of a Regents Professorship.

Note: If Professor Zepeda's poem in Tohono O’odham language is set in type or word-processed, the s with the dot under it should be set so that the s is on the line and the sub-dot is below the line.

RECOMMENDATION/CONCLUSION:

RESOLVED: That The University of Arizona be, and hereby is, authorized to promote Professors Malcolm Hughes, Michael Marcellin, and Ofelia Zepeda to the rank of Regents’ Professor, effective July 1, 2007, and to award the \$5,000 salary increase that customarily accompanies these appointments.