

August 14, 2012

Clayton Christian
Commissioner of Higher Education
Montana University system
2500 Broadway
Helena, MT 59620-3201

Dear Commissioner Christian:

In recognition of his service to Montana State University, his renowned contributions to the science of bio-inspired nanomaterials, and his laudable integration of learning, discovery, and engagement, it is my pleasure to nominate Professor Trevor Douglas for consideration as a Regents Professor.

Professor Trevor Douglas has demonstrated substantial and sustained excellence in every aspect of his professional service at Montana State University. His contributions in scientific research, in teaching and mentoring, and in outreach are of the highest echelon.

Professor Douglas joined the faculty of Montana State University in 2001, achieved the rank of Professor in 2007, and earned the distinction of a Letters and Science Distinguished Professorship in 2008. He has served as Director of MSU's Center for Bioinspired Nanomaterials since its establishment in 2003. His work has been recognized with numerous, major awards including the 2011 MSU Meritorious Technology/Science Award, the 2010 MSU Provost's Award for Undergraduate Research/Creativity Mentoring, the 2009 MSU Provost's Excellence in Outreach Award, 2005 the Charles and Nora Wiley Faculty Award for Meritorious Research (MSU), and MSU Alumni Association Awards for Teaching/Mentoring Excellence in 2011, 2010, and 2008.

Professor Douglas has established a lofty, international reputation as a pioneer in the new field of nanoscience. He has established an innovative and powerfully general approach to the synthesis of nanomaterials that features the use of isolated and designed proteins cages as templates for the synthesis. He has been enormously creative in cultivating target applications for the materials that he makes.

Professor Douglas has published over 150 scientific papers that span an enormous range of scientific activity from solid-state physics through medical imaging. His work regularly appears in the most prestigious journals, including Nature, Science, and Proceedings of the National Academy of Science. The impact of his work, measured by citations by other scientists, is extraordinary: over his career, his work has been cited in nearly 3000 articles, with roughly 900 citations in the past year. These quantitative data give a strong sense of Professor Douglas's luminosity in the scientific community.

In addition to leading the creation of knowledge in an exciting field, Professor Douglas's research has substantial broader impacts. He has secured numerous patents and provisional patents on inventions that are important intellectual property assets of MSU

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and have been licensed to private sector companies. Professor Douglas has done extraordinary work in fostering collaborative, interdisciplinary research at MSU. He is a co-founder of the Center for Bioinspired Nanomaterials, and as such, has participated in over 25 funded grants with other MSU faculty. Professor Douglas has brought very substantial external grant funding, nearing \$20M overall in total, from a panoply of Federal agencies, private foundations and industries.

The research opportunities provided by Professor Douglas have provided training for numerous students and scientific staff. His research group has included more than twenty graduate students, 16 postdoctorals, 11 technicians, and 35 undergraduates since 2000. His former students are continuing their productive work in further graduate and postdoctoral training at leading institutions and in careers as professors and scientists in industry. Notably, several current MUS faculty and Montana entrepreneurs have trained in the Douglas group.

Professor Douglas has prioritized recruiting undergraduates into the research laboratory - many are already working full-time in his laboratory during the summer after their freshman year at MSU. Dr. Douglas works diligently with these budding scholars. He has published over 20 peer-reviewed papers with undergraduates as co-authors. Undergraduates working in Dr. Douglas' lab have garnered numerous prestigious scholarships and awards. Most notably, two of his students were honored with Goldwater fellowships.

Professor Douglas excels in the classroom at introductory, upper-division, and graduate levels. He is called a "hero" by students. He captures their imagination and motivates their transition into research. His eagerness for mentoring undergraduates in authentic research puts "discovery-based learning" in its proper place—at the bench in a research laboratory. He has also integrated outreach as part of the classroom experience by developing and offering an innovative course in "Service Learning in Chemistry and Biochemistry".

Professor Douglas's outreach efforts are remarkable. His work has been featured in major print media, and on radio, pod-cast, and television. Trevor's work was featured in a January 2007 broadcast, "Viruses and Protein Cages: From the Hotsprings of Yellowstone into Devices" a collaboration with PBS (KCET, Los Angeles, CA) and Wired Magazine, aired on National PBS TV January 2007. His work was highlighted in a National Geographic Documentary, "Virus Hunters" that aired in January of 2009, which illuminated the role that viruses have played as drivers of evolutions. While his celebrity is rising high in broadcast media, Dr. Douglas remains deeply committed to engaging K-12 students, particularly students from underrepresented minorities, in the love of science. Some highlights include:

Classroom demonstrations for 7th grade classes (300 children per year) – Sacagawea Middle School, Bozeman MT (2006-2012)

Honors Physical Science: week-long seminar (2 hrs/day) on-site to 60 freshman high school students (2009).

Multiple visits to Crow Reservation Public Schools: coordinated attendance MSU science outreach activities. (2006-2012)

“Intro to Science Research” during Native American Youth Preview Days: 150 Native American high school students spend a day exploring academic options - 3 hours of visits and activities in a variety of research labs - at MSU (2011 and 2012).

Pow-Wow Science: Coordinated a 2-hour hands-on science activity in a research lab for children attending the Pow-Wow. (2011-2012).

NanoDays: Part of the national initiative from NISE net (Nanoscale Informal Science Education network). Over 300 people participate each year in the events at MSU, which include public lectures, hands on demonstrations, and multi-media displays. (2008-2012).


MSU Science Saturdays: A monthly hands-on science activity for kids (ages 8-14) from Bozeman. This effort included bringing groups of Native American youth from the Crow Reservation to MSU and traveling (with MSU undergraduates as helpers) out to the Reservation to conduct hands-on activities. Over 1,000 youth have participated in these Science Saturdays events. (2008-2011).

Peaks and Potentials: A weeklong outreach (2 hrs/day) for high achieving kids (ages 12-14) on the topics of biomaterials, water, and energy, involving hands-on inquiry based learning. (June 2009-2011).

Science Outreach Africa: Expanded the Science Saturdays efforts to the townships schools around Cape Town, South Africa. Two trips have been completed (Dec 2009, May 2010) in which we have interacted with approximately 700 children. Four MSU undergraduate students have accompanied me and been invaluable as teachers and mentors on these trips.

Among teacher-scholars, Professor Douglas is a world-renowned luminary. There are very few who fulfill our full mission of teaching, research and service with as much dedication and excellence as Trevor Douglas. The Regents Professorship is the highest honor that we can accord him. We urge the Board of Regents to approve this nomination.

Sincerely,



Waded Cruzado
President