To: Tenure committee members, E&P Dept., Dean, and Provost
From: Dr. Donald Isenhower
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Subject: Dr. Jim Drachenberg's tenure..

Hello to all,

I am writing this letter to support Dr. Jim Drachenberg's being granted tenure. I offered to do this for him before he asked for me to do so. Thus it is not coming from the perspective of a request, but is what I had offered to provide. As Jim is fairly humble, parts will likely embarrass him and he will claim I am exaggerating, but when you read a quote about him made by a friend and collaborator, you will see that I am not.

Jim is simply put, a marvelous person, outstanding professor/teacher, a well respected researcher in nuclear physics, as well as a dedicated Christian. As Jim was one of my students before he became my colleague, I have known him for a long time. Keeping up with him during graduate school was easy, as I was the one who told him that Texas A&M was where he should go since Dr. Carl Gagliardi and Dr. Bob Tribble are two of the most outstanding Ph.D. advisors I know of in the entire U.S., and I have worked with well over a thousand professors who perform this role. I will happily explain my conclusions on this point, but I will spare you from that tangent.

While a student, Jim did outstanding work in the classroom and outstanding work in the research lab. He worked on our Brookhaven National Lab experiment, PHENIX. His work was important enough that we took him to one of the yearly collaboration meetings (this one was held at Vanderbilt), which is a rare thing for us to do.

His work on the BNL STAR experiment, which was the other large experiment on the Relativistic Heavy Ion Collider (RHIC), was outstanding as a student. I quote some things Dr. Carl Gagliardi, a professor at Texas A&M and head of their Cyclotron Institute, stated about Jim. One was simply, "Please send us all of the Drachenbergs you get!" Later, when Jim was working as a STAR postdoc, Carl's comment was "When Jim started at A&M we were guiding him. It has now completely turned around and he is leading ***us*** (emphasis was his) in completely new directions we had never even thought about!" You would have to know Carl to know just how big of a compliment that happens to be. Carl is one of the physicists I work with who I can keep up with on only about 25% of what he knows. He is an expert on detector electronics and hardware, and also an extremely competent theorist. There aren't many of those in any field, so this praise may embarrass Jim, but that's what Carl said.

Once ACU was able to recruit Jim to come to ACU from Lamar University, he was added to our DOE funded Nuclear Physics Group. To put things in perspective on that you need to know how the approval to do this starting in the 2nd year of our past 3-year grant cycle was done. Dr. Rusty Towell, Dr. Michael Daugherity, and myself worked out that we could cover adding Jim with only a 10% increase in our funding. We called our funding officer in the Medium Energy Physics Division of the DOE Office of Science to discuss it. Dr. Gulshan Rai began by saying

that Jim would have to apply for his own funding for us to do this. Then he paused, and said, "Wait a minute. You said you could cover him with a 10% increase, correct? That would only be $50,000, so forget it. Just send me the forms for a supplemental increase in your budget and be done with it." Thus the entire process of increasing our grant size to cover Jim lasted only about 2-3 minutes. That is a record for any such thing I have asked for from DOE in the past 34 years I've been at ACU, and gives an indication of the quality of Jim's research and the additional expertise he would add to ACU. It is primarily due to him that we were able to once again obtain an increase in funding for our 3-year grant to hire a postdoc, to specifically work with Jim on STAR spin analysis.

Jim has had to deal with lots of things as he has become a professor at ACU and a major contributor on our BNL STAR involvement. I will leave the details of that to his own and others' descriptions. I simply state that he has done the adaptation to teaching at ACU very well and is making definitive improvements in the courses he is teaching.

He is primarily a person who does data analysis, which is where ACU has had its only negative comments during each renewal period. The rest of us are always so tied up in detector hardware projects, that finding time to work on analysis simply has not been possible. Even our recent joining of STAR had apparently been something STAR wanted Jim to work on us to do while he was still a professor at Lamar. He served as a Deputy Spokesperson of STAR at that time, which is also unusual for someone that early in their career. The reason was that ACU is well known for building detector components on large physics experiments. This has been true ever since the program began. Our undergraduates consistently out-perform other universities' graduate students in this and other areas. Of course the reason is that we don't just "send" students to the national labs to work on experiments, but "take" them. There is almost always an ACU faculty member available to provide help and guidance on all of their tasks. My primary expertise is in hardware and electronics. Michael's is hardware and software. So we pretty well had our students covered during any construction project, no matter how big or small or nature of the device under consideration. But were completely short on the analysis and theoretical side.

Jim is now providing oversight not only on our NSF Major Research Infrastructure (MRI) grant, but also on theoretical analysis of STAR data. He took one recent student (graduate of 2020) and had him performing an analysis that he reported on in multiple places. Instead of the normal poster our undergraduates give, Roy gave a standard contributed talk at the Fall 2019 Fall Meeting of the Division of Nuclear Physics of the American Physical Society. After he finished his talk he had numerous professors approach him about coming to their universities to work with them on their research projects. So as a result of Roy's hard work (he is simply an unbelievably talented student) and Jim's direction on his research, Roy obviously had presented work that was considered significant by the other nuclear physicists who were in attendance.

Leading an undergraduate on a data analysis project is much harder than a hardware project. This is simply because the student has yet to take the physics courses one needs to do this. A graduate student in physics usually does not start doing serious analysis work until after their 2nd year, so guiding an undergraduate has to be done where one overcomes not only at least a year of undergraduate physics courses, but the 2 years of graduate courses. Somehow Jim was able to do this.

Jim is also able to describe difficult concepts in theoretical spin physics to our undergraduates who have never even heard of a quark, much less discussed the spin of a proton. It is a complicated part of physics and it has been since 1983 that while we knew we had difficulties with spin, that we learned that we basically know *nothing* about it. It is the usual march of research. The more we learn, the more we realize the shortcomings of all of our theories and ideas. The comment credited to J. B. S. Haldane: "The universe is not only stranger than we imagine; but stranger than we CAN imagine." seems to remain true. So it is really amazing that we have students who have only completed their 2nd year of physics, stating by the end of this previous summer that they are understanding one of the most difficult research topics in our field, and it is primarily thought Jim's ability to describe this topic at a level that I personally find amazing. I've understood the concepts for years, but was always at a total loss of how to explain them to an undergraduate, or even a young graduate student.

I have stated all of this in order to help back up the fact that not only is Dr. Jim Drachenberg deserving of tenure, but that ACU is very lucky to have landed him here! He easily could have been hired by a much larger university at this point in his career. So it is critical to the future success of the ACU Nuclear Physics Group and the Engineering and Physics Department that we keep him here. Any other outcome would be complete failure in our judgement to be blunt.

Sincerely,
Donald Isenhower