THE UNIVERSITY OF ARIZONA

Department of Physics
College of Science

Prof. Dr. Johann RAFELSKI
1118 E. Fourth Street
Tucson, Arizona 85721-0081
Tel: (520) 990-4213
Rafelski@Physics.Arizona.EDU
www.physics.arizona.edu/~rafelski/

Tucson, February 9, 2018

Prof. Dr. Miguel Alcubierre Moya

Director of the Instituto de Ciencias Nucleares

Universidad Nacional Autónoma de México

Ciudad Universitaria, Circuito Exterior S/N

A.P. 70.543

04510 Mexico City, Mexico

Ref.: Letter of appreciation: **Prof. Dr. Peter Hess**
Candidate for the position of Professor Emeritus at UNAM

Dear Prof. Dr. Miguel Alcubierre Moya,

Writing this letter I realize how fast time passes. It seems to be just yesterday that I was a young professor at Frankfurt J.W. Goethe University persuing adventurs in Strong Field Physics and Quark-Gluon Plasma, and Prof. Dr. Peter Hess was graduating, working in traditional Nuclear Science. However, especially in the context of QGP group theory was an immensly important component and so our science paths have crossed early on.

Of course the Ph.D. work Peter did with Prof. Dr. Dr. h.c. multiple Walter Greiner (not among us anymore) turned out to be of great significance to nuclear physics: the geometrical model of the nucleus is called now the *Frankfurt Model*. Peter applied group theoretical results obtained by Prof. Marcos Moshsinky, also from UNAM. The work of Prof. Hess made it possible to extend geometric model to nuclei with additional intrinsic properties and to explore shape isomers. This *Frankfurt Model is ranked among very important contributions in nuclear structure physics!*

After I accepted the position of a Chair in Theoretical Physics at the University of Cape Town, I invited Dr. Peter Hess in 1984 to join the newly formed *Institute of Theoretical Physics and Astrophysics at* the *University of Cape Town* Peter overlapped strongly in his intersts and group theory competance with my associate Professor, Dr. R.D. Viollier (who is today due to sickness not available to write a letter) whith whom he coauthored several works while in Cape Town. In particular, Peter applied his knowledge of group theory and many body systems to the description of many gluon systems. Peter continued to work in this field of research for many years to this date. Here worth mention is his study of the non-perturbative effects in Quantum Chromo-Dynamics, which may be a possible alternative to numerically very involved methods as the Lattice Gauge calculations. In his contributions he published several toy models with analytic results.

In the last 10 years Prof. Dr. Peter Hess expertise in group theory came handy when he resumed to collaborate with the his former mentor Prof. Dr. Walter Greiner in the field of General Theory of Gravity. Peter developed an extension of the General Relativity, with tentalizing capability to avoid the formation of an event horizon. This result has tremendous implications and the predictions of this theory are currently tested by the Event Horizon Telescope.

In summary, Prof. Dr. Peter Hess is one of the top scientists in our diverse Nuclear Science domain. He continues today his scientific activities and enjoys a high international reputation. He is known as a highly active member of our community. For example he has been invited to several conferences/workshops in South Africa such as 1996 (Wilderness), 2011 (Makutsi Farm) and 2015 (Makusti).

I therefore strongly and without any hesitation nominate and recommend to you Prof. Dr. Peter Hess for the "professor emérito" recognition.

Yours sincerely

Prof. Dr. Johann Rafelski