



Horst Simon
Deputy Director

December 8, 2020

Subject: Letter of Recommendation for Dr. Soonwook Hwang

To whom it may concern:

It is my great pleasure to write a letter of recommendation in support of Dr. Soonwook Hwang for consideration as President of KISTI.

I know Dr. Hwang well and have interacted with him for many years. I regard him as an exceptional computer scientist, worthy of great respect. We have collaborated in the past, so I am quite familiar with Dr. Hwang's accomplishments as Director of the Supercomputer Center at KISTI. His earlier research contributions in grid computing, in particular about fault tolerance in the grid and distributed resource management are well respected in the field. I have listened to his conference and colloquium presentations, and he has visited me in Berkeley several times when we discussed aspects of his research in detail.

Based on my collaboration with Dr. Hwang, I can make several observations, that all demonstrate that he is an exemplary researcher. He is very quick in assimilating new technology and insights, and bringing them to bear on established problems. He has far reaching interests, and surveys the literature widely, often coming up with very intriguing new ideas. And lastly, he is always interested in applications, and enjoys working on practical problems. Dr. Hwang combines research excellence with a deep interest in applications.

Dr. Hwang has also conducted research in areas such as particle physics applications, and screening and drug discovery, with which I am less familiar. But the quality of his work, in particular his distributed computing work, is excellent and is widely published in many of the best Journals and conference proceedings in his field. His output in the number of papers, conference proceedings and invited talks is very productive. His publication record provides a clear indication of the high quality of his results.

Since 2006 Dr. Hwang has been leading supercomputing development at KISTI, a distinguished national academic HPC institution worldwide. Because of his leadership KISTI has recovered a leading position in the TOP500 list for which I am an editor. The introduction of the Nurion system in 2018 was a major accomplishment for KISTI and Dr. Hwang. This system ranked #11

Lawrence Berkeley National Laboratory

One Cyclotron Road, MS:50A-4133|Berkeley, CA 94720|P: 510-486-6100|F: 510-486-6720 |Email: HDSimon@lbl.gov

on the TOP500 list, which is an appropriate location for the national system of a high tech country such as South Korea.

I had many conversations with Dr. Hwang about how KISTI can distinguish itself as a worldwide leading institution in HPC. I believe there are several directions that KISTI can take and that Dr. Hwang is well versed to pursue. Both in the U.S. and in Japan the notion of co-design for computer architecture had been leading to remarkable success with the exascale systems in the U.S. and the Fugaku system in Japan. The key is to develop a strong partnership with industry and a national desire to lead in this technology. I believe both elements are present in S. Korea with a strong industrial base for technology and companies such as Samsung that are world leaders. I would recommend for KISTI under Dr. Hwang's leadership to pursue such a private-public partnership and develop the next level of HPC systems. Understanding the critical need to control this technology the EU has taken a similar road to developing a domestic HPC ecosystem starting with the EU processor initiative. South Korea could do the same with the intellectual leadership at KISTI.

I would also recommend a significant investment in AI and Machine Learning. AI/ML depends on HPC platforms and technology to be competitive, and also has significant potential to change scientific explorations. I believe that KISTI should embark on an aggressive program to make AI/ML technologies available for researchers in Korea and also provide the appropriate hardware platform. Dr. Hwang's international experience and collaborations with leading centers worldwide put him in an excellent position to realize such a vision in Korea.

I have heard Dr. Hwang presenting talks in conferences and seminars. He is able to communicate with clarity and simplicity, even on technical subjects that are often considered dry. I have seen him handle questions from a very critical audience in a confident and assured manner, while not being distracted from the flow of his well-prepared lecture. He has very remarkable communication skills. Because of that he has received many invitations to present his work internationally, and has built up a wonderful international reputation.

Dr. Soonwook Hwang's work, accomplishments, and promise are of the highest quality. I strongly recommend him without any reservation for your consideration for a leading position at KISTI.

Sincerely,



Horst D. Simon

Deputy Laboratory Director for Research

Chief Research officer

<https://www.linkedin.com/in/horst-simon-6b3417/>

Horst D. Simon
Deputy Lab Director for Research
Lawrence Berkeley National Laboratory
Phone: 510-486-6100 | Fax: 510-486-6720 | Mail Stop: 50A-4133
HDSimon@lbl.gov

Horst Simon is an internationally recognized expert in the development of parallel computational methods for the solution of scientific problems of scale. His research interests are in the development of sparse matrix algorithms, algorithms for large-scale eigenvalue problems, and domain decomposition algorithms. His recursive spectral bisection algorithm is a breakthrough in parallel algorithms. Honored twice with the prestigious Gordon Bell Prize, most recently in 2009 for the development of innovative techniques that produce new levels of performance on a real application (in collaboration with IBM researchers) and in 1988 in recognition of superior effort in parallel processing research (with others from Cray and Boeing).

Horst Simon is Deputy Laboratory Director for Research and Chief Research Officer (CRO) of Berkeley Lab. The Deputy Director for Research is responsible for the overall integration of the scientific goals and objectives, consistent with the Laboratory's mission. Simon has been with Berkeley Lab since 1996, having served previously as Associate Laboratory Director for Computing Sciences, and Director of NERSC. In his role as Deputy Director, Simon has been instrumental in the creation of new concepts such as Cyclotron Road and CalCharge that support energy innovation and forge stronger connections of the national labs with industry.