HHMI
HOWARD HUGHES MEDICAL INSTITUTE

June 12, 2014

Re: Petition of Dr. Clement Riedel as an alien of extraordinary ability

Dear Immigration Service Officer,

I am writing to offer my enthusiastic support of Clement Riedel petition for permanent residency in the United States in the category of alien of extraordinary ability. Clement has reached and maintained international recognition and is currently one of the best in his field. He has contributed, and I expect he will continue to contribute, substantially to a field that investigages our fundamental understanding of processes at the nanoscale level in soft matter and living organisms.

I have been Clement's supervisor since October 2011 and I can attest of his essential and critical participation in the outstanding research carried our in my laboratry at the University of Califorina, Berkeley. As a professor of Physics, Chemistry, Molecular and Cell Biology, and Biophysics, I am part of the few scientists having a broad enough knowledge base to understand and judge the complexity of Clement' scientific expertise and impact in the field. I began my professional career as a faculty member at the University of New Mexico, Albuquerque in 1986 and was promoted to full professor in 1989. I have been a full Professor at the University of California, Berkeley since 1998. I am the author of over 300 peer-reviewed papers in national and international journals (like Nature, Science or Cell), and served as a reviewer for more than 30 scientific publications, journal, and books. Details of my career can be found in my attached CV. This year I gave a national lecture at the Biophysical Society, one of the highest honors in Science. I am uniquely positioned to understand and comment on Clement's critical and specialized research.

Clement has reached and sustained national and international recognition at a very young age. In the past five years alone, he has published over 12 scientific articles and presented his findings at several professional conferences around the world. The significance of Clement's published work is most clearly seen in the high numbers of citations (more than 100) in eminent international peer-reviewed journals. In addition to his regular publications subsequent citations, Clement serves as a reviewer for international scientific publication manuscripts. Due to his achievements, he has received a prestigious grant has funded his work in my lab for three years.

Below, I will detail the outstanding research and critical role that Clement has played in my laboratory. Clement studies a cutting edge subject: how the energy released by a single chemical reaction affects the enzyme catalyzing the reaction. During a typical enzyme-catalyzed reaction, bonds are made or broken involving the release of heat whose magnitude is much larger than the energies maintaining the stability of the catalyst itself. The large energies released during catalysis have not received, however, great deal of attention. Clement developed an enzymatic assay at the single molecule using Fluorescence Correlation Spectroscopy (FCS). He then code program to analyze the data, and participate in the development of the theory. One individual

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being so polyvalent (carrying experiments, analyzing data, participating in the theory) is particularly remarkable. Thanks to its brilliant research, Clement results suggest a crucial re-thinking of the current paradigm of enzyme catalysis: with the energy released easily one order of magnitude larger than the free energy stabilizing the protein catalyst, it is not unthinkable that many enzymes may partly unfold after each catalytic event and that their turnover measured in bulk may include a 'dead time' while the enzyme regains its active structure. This work is of interest to a broad range of scientists, including enzymologists, biochemists, biophysicists, and in general, those interested in energy exchange and energy flow phenomena at the nano scale. This research is now being finalized an will be submitted to the journal Nature.

In addition to this main project research, Clement studied micrtoubules at the nanoscale. Microtubules are found in cells and they form the cytoskeleton. They are essential in a lot biological processes including cell division. Clement used Atomic Force Microscopy (AFM) to study the process of depolymerisation. Clement previously learn AFM during his Phd, during which he used the technique in the electrostatic mode. For this new study that he performed in my laboratory he performed measurement in liquid reaching unprecedented lateral resolution. This promising research should be continue with a state of the art equipment and will open the door of an understanding of a fundamental biological process at the origin of numerous diseases including cancer.

After having Clement in my laboratory for two years, I am already extremely impressed by his extraordinary passion and vision in science. His seminal work will provide us with an unprecedented understanding of living systems at the nanoscale, which will benefit the advance of the fields of biophysics, biochemistry and medicine.

Every year hundreds of postdoctoral researchers, from all other the world, apply to work in my laboratory. Due to the reputation of my research and the environemnt of academinc excellence at University of California, Berkeley, the quality of the applicants is very high. I usually fund ~10 new members every year. Clement has a unique set of skills; finding a researcher with similar knowledge and skills would be challenging and training a researcher from scratch would be next to impossible. I decided to fund Clement over all the other excellent applicants because I think he is one of the best-qualified people to perform research in his field.

Clement's remarkable talents as a pioneering scientist in his field clearly demonstrate his standing as a first rank researcher. The depths of his experience in each of the relevant research projects are of critical importance for both national health and economy. His strong record of scientific publications, conference presentations, and many awards underscore his importance and influence. Given his value to the field of dielectric, energetics and dynamics properties of soft and biological material and the essential role he plays at the University of California in Berkeley, I feel that Clement easily qualifies for residency under the category of alien with an extraordinary ability. I am certain that he will continue to produce outstanding research achievements as his career progresses. I am convinced that the national interest will be served by granting Clement's request for permanent residency. I support his petition with utmost enthusiasm and with no reservations whatsoever.

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Sincerely yours,

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