



Howard Hughes Medical Institute
Research Laboratories

Joachim Frank, Ph.D.
Investigator

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Biocomplexity Faculty Search Committee
c / o Prof. Rob de Ruyter van Steveninck
Department of Physics
Indiana University
Swain Hall West 117
Bloomington IN, 47405-7105

Dear Dr. de Ruyter van Steveninck:

It is my great pleasure to recommend Dr. Florence Tama for your faculty position, and I can do this with high enthusiasm.

I met Florence almost three years ago when I gave a lecture at Scripps. After my lecture, when I had the chance to meet Charles Brooks and Florence, it turned out that our new experimental findings regarding the conformational rearrangements of the ribosome during translation, namely the motion of the L1 stalk, were independently predicted by her application of normal mode analysis to the X-ray structure of the ribosome. We immediately decided to collaborate on a more detailed analysis, and a characterization of the motion in molecular terms. In the course of the collaboration, Florence visited my lab in May of 2002 for a week, and this gave me the opportunity to get to know her. Our collaboration was very successful, and led to a paper that was published in PNAS. We are continuing this collaboration, now with the goal to exploit normal mode analysis to achieve flexible fitting of X-ray structures into cryo-EM density maps.

From my interactions by e-mail and in person, and looking at her research accomplishments, I'm very impressed by her intelligence and creativity. She has developed algorithms that can effectively deal with the gigantic problems posed by large macromolecular assemblies, such as the ribosome, which is formed by more than 100,000 atoms. Her collaboration with Willy Wriggers has resulted in a method for investigating structures represented by their low-resolution density maps. Trajectories of motions discovered in this analysis are likely to have a great heuristic value in assessing innate dynamical properties of such large systems.

In summary, I'm convinced, based on my interactions with her, and seeing her substantial research accomplishments, that she is headed for a distinguished academic career.

Sincerely,

Joachim Frank, Ph.D.
Chief, Laboratory for Computational Biology and Molecular Imaging
Professor, Department of Biomedical Sciences, State University of New York at Albany