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**November 21, 2005**

**PERSONAL AND CONFIDENTIAL**

**To:** Yves Brun  
ybrun@indiana.edu

**From:** Prof. William H. Sanders, Univ. of Illinois

**Subject:** Dr. Jean Peccoud Evaluation

Dear Dr. Brun:

I'm pleased to write this recommendation letter for Dr. Jean Peccoud. He's an exceptional scientist and researcher, and would be a valuable addition to your department at Indiana University.

I've known of Dr. Peccoud since about 1998, when he first began to use our stochastic modeling package *UltraSAN* to model molecular networks. I'm a computer engineer and at that time had not yet worked in biological applications, and was impressed that Jean could use our modeling software, which was intended to estimate the reliability and performance of computer systems and networks, for biological applications. About 5 years later, Jean and I began to work together, when he took a job at Pioneer Hi-Bred International, Inc. (E.I. du Pont de Nemours). Since that time, we have collaborated on the development of hybrid simulation tools for biological applications, including the development of a hybrid simulator. I'll give more details on his work in these areas in the following paragraphs, from the perspective of a computer engineer, rather than a biologist. I'm sure that others will be able to comment on his strengths from the biological perspective.

From my perspective, Jean has been exceptionally effective at bridging the gap between stochastic modeling for engineering and biological applications. His *Proceedings of the National Academy of Science* paper (1998) is clear evidence of this. This seminal paper was one of the very first papers to use stochastic Petri nets as a representation for biological phenomena and, because of the significance of its results, was a catalyst for significant work in both the systems biology and stochastic modeling communities. For example, there are over 50 groups now that use our Möbius modeling tool for biological applications. Most (if not all) of this use can be attributed to Dr. Peccoud's paper, which showed the potential of our software in this regard. His work has also significantly motivated work by computer scientists who do stochastic modeling to consider biological applications. His 2003 keynote lecture at the IEEE International Workshop on Petri Nets and Performance Models was requested due to recognition of his impact, and further motivated interdisciplinary research on stochastic models for biological applications. I attended the lecture, and it is clear that he is an excellent lecturer and would likely be a very good teacher.

More personally, I've collaborated with Jean since 2004 on molecular modeling, during which time Pioneer Hi-Bred supplied my group with an unrestricted grant that supported several graduate students. The main focus of our work has been on hybrid simulation algorithms for biological applications. In this work, we have created a simulation algorithm that automatically decomposes a mass action model into

two parts, one part that is simulated using discrete-event simulation, and another that is simulated as a set of linear differential equations. In contrast to past work in this regard, this work can automatically identify the parts of the model that should be simulated using each method, and dynamically change the partition, if it is profitable to do so, as the simulation evolves. In this work Jean has served in the key role of bridging the gap between biology and stochastic algorithms, understanding both the biological and algorithmic issues necessary to create an efficient algorithm.

In summary, I give my wholehearted support to Dr. Jean Peccoud for a faculty position at Indiana University. Through his current industrial position, he has already made significant contributions to systems biology, and is rapidly establishing himself as a world leader in his field. Moving to a top academic institution would further facilitate that growth, both bringing prestige to the institution that employs him, and enabling him to take his research to the next level. You would do very well to hire Dr. Peccoud.

Sincerely,

A handwritten signature in black ink, appearing to read 'Wally Sanders', with a long horizontal flourish extending to the right.

William H. Sanders  
Director, Information Trust Institute  
Donald Biggar Willett Professor of Engineering