



Bloomington, January 15, 2004

Search Committee
Biocomplexity

DEPARTMENT OF
PSYCHOLOGY

Letter of Recommendation for Dr. Roman Poznanski

Dear Members of the Search Committee:

With this letter I enthusiastically recommend Dr. Roman Poznanski for the position in your Institute. Dr. Poznanski is an accomplished and independent scientist with a strong track record in the past and great promise for the future. His extensive research experience in retinal information processing and models of integrative neuronal networks would make a great addition to your department and contribute to your focus on theoretical and computational biology. I was very lucky to attract Dr. Poznanski to my laboratory in September of 2002 and we have since collaborated on several projects relating to our main common interest, integrative neuroscience. I am really extremely impressed with his work, his originality and drive. As I will discuss in detail below, Dr. Poznanski's is an outstanding scientist in terms of his level of skill, as well as his leadership, originality and intellect. I support Dr. Poznanski's application to your Institute in the strongest possible way.

Dr. Poznanski's name is well known and highly respected in theoretical and experimental neuroscience as well as in integrative biology. He received his PhD in 1991 from Australian National University, working in the lab of Prof. W.R. Levick. Subsequently, he worked in various university and research laboratories, in Australia, Europe and Japan. He is the author of around 30 scientific publications in a variety of peer-reviewed journals. He is also the editor of the well-received volumes *Modeling in the Neurosciences: From Ionic Channels to Neural Networks*, published in 1999 (a new edition is forthcoming in 2004), and *Biophysical Neural Networks: Foundations of Integrative Neuroscience*, published in 2001. In addition, Dr. Poznanski is one of three associate editors of the new *Journal of Integrative Neuroscience*, published by Imperial College Press, London. I summarize these accomplishments to highlight Dr. Poznanski's advanced role and standing in the field of theoretical neuroscience and computational biology.

I knew of Dr. Poznanski and his contributions to integrative neuroscience long before we made contact last year. Over previous months and years, I followed the inauguration of the new journal, which he spearheaded, with great interest because I consider integrative neuroscience a major new research focus in neurobiology. We desperately need models and methods that allow us to integrate phenomena and results obtained at different organizational levels, from channels to systems.

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Roman's skills as a mathematician allow him to handle model complexities by utilizing analytical methods, thus sidestepping the need for lengthy and incomplete computer simulations. This style of modeling allows unique insights and is less prone to numerical or computational artifacts. Furthermore, it may allow closing the gap between microscopic levels (channels and ionic processes) and macroscopic processes (functional connectivity, behavior and cognition) more rapidly than could be achieved through massive simulations of "standard" computational neuroscience. Dr. Poznanski's extensive knowledge in biophysics and cellular processes allow him to merge computational biology and neuroscience in novel and unique ways.

Since coming to IU, over recent months, we started to develop a mathematical framework for the effects of neuromodulators on the functioning of nerve cells. Roman has pushed this project independently and completed an initial set of studies (on back-propagating action potentials and resulting plasticity) well ahead of schedule – this work will be presented at the Society for Neuroscience Meeting this year and a paper is in preparation and will be submitted shortly. All this after only a few months in his new position here at IU! Further work is planned for the remainder of the year and we hope to have the neuromodulatory model fully worked out in a few months. I am very curious to compare the functional properties of this biophysically-based model to others (previously proposed) that lack this level of realism. Overall, Dr. Poznanski shows great promise for continuing highly productive research career.

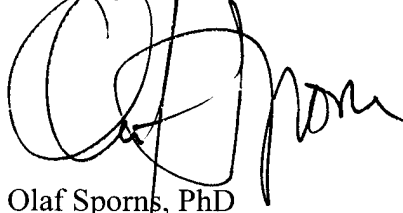
Dr. Poznanski is a true scholar. His knowledge of biology and neuroscience is prodigious. His office is filled with piles of manuscripts and papers and he keeps up to date by regularly reading new research papers as they appear. In addition to this, Dr. Poznanski has a firm grasp of the "older" literature, including mathematics and modeling papers ranging back into the 60's and 70's. That is the mark of a true scholar, in my opinion. Most of us manage (more or less) to keep up with recent developments, but few of us will actually track down and read papers dating back a few decades. As a result, Roman is a true resource for classical as well as modern work within a wide range of theoretical biology and neuroscience. He knows "his stuff", and much more.

I believe that Dr. Poznanski would be in a good position to write research grants soon after starting a faculty position. In fact, I have encouraged him to start thinking about grant projects, in order to have an application ready by the time he finds a faculty position. His research program is independent of a mentor, far more advanced than that of a typical "junior faculty" member, and he writes very well and with great clarity. Furthermore, he is in an area where more and more funding is becoming available, through various interdisciplinary NIH and NSF programs. Dr. Poznanski was an invited participant (and chaired a session) at a NSF-sponsored conference this summer on "soft computing". I think it is highly likely that he will be able to obtain ample research funding within a relatively short time.

Although Dr. Poznanski is not teaching here at IU, he has taught before and is clearly capable of educating either graduate or undergraduate students across a range of topics, especially in computational biology, math/statistics and neuroscience. Dr. Poznanski delivers strong presentations, clearly outlined and compellingly argued. He will be an inspiration to students in a teaching environment.

Dr. Poznanski came to the US (where he had never worked before) with the goal of starting a research and academic career. He brings with him a strong foundation of skills and talents, a firm conviction about what he wants to do in research, the highest levels of motivation and energy I have ever seen, and an engaging personality that always matches well with his surroundings. In my opinion, Dr. Poznanski presents a real opportunity for a search such as yours. In effect, you would be hiring a person who brings research experience and “seniority” that is more often found at the senior assistant professor or associate professor level. I recommend him in the strongest possible terms. Please do not hesitate to contact me (812-855-2772 or osporns@indiana.edu) if you have further questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Olaf Sporns', written over a large, stylized circular scribble.

Olaf Sporns, PhD
Assistant Professor of Psychology