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Biocomplexity Faculty Search  
c/o Ms. Yana Teterina  
Department of Physics  
Indiana University  
Swain West 117  
727 East 3rd Street  
Bloomington, IN 47405-7105

Dear Sirs:

It is my pleasure to provide a recommendation for Dr. German Drazer for a faculty position at Indiana.

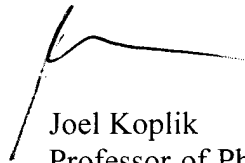
German came to CCNY as my postdoc in 1999 after receiving his degree in physics in Argentina. Initially he worked with me on porous media transport problems, and has since worked with Andy Acrivos on suspensions, and with both of us on nano-flows. German's graduate research was theoretical, involving various aspects of dispersion and reaction in porous media and other random processes, and he was highly recommended by a French colleague who had visited his group. We began a project on transport through self-affine fractal fractures, and were able to make a certain amount of analytical progress before turning to numerical simulation. Although his fluid mechanics experience was limited, German quickly mastered the relevant background and did more than his share of the theoretical work. Likewise, he had no previous numerical experience but was quickly able to modify a borrowed lattice Boltzmann program for this application, and began running large-scale parallel calculations at outside supercomputer centers. All of the numerical work, in the four papers we have written on the subject was his, and he played the major role in the analysis of the computations and in presenting and writing up the results. This project now involves a two-part international (NSF-supported) cooperation with groups in Paris and Buenos Aires, and German is in charge of coordinating our collaborators' experimental work with our simulations. The entire project would never have gotten off the ground without his efforts, and his ability to quickly become productive in a new area was most impressive..

German has proceeded similarly in the other research topics noted above, first learning the background material almost ab initio, and then rapidly producing novel and high-quality numerical and analytical results, accompanied by a cogent analysis. His contribution to our work on molecular dynamics simulations of nano-particle flows, which appeared last year in Physical

Review Letters, typifies his abilities. He could have taken one of my codes and performed the calculations following my instructions with little effort, but instead chose to write his own code, with only general suggestions from me, and then produced results which were numerically correct and physically novel. The results on particle motion were unexpected and German proceeded to convincingly identify the physical mechanisms which led to the observed behavior, and thereby provide a substantial analysis of the entire problem, which will be invaluable in our future work. We are now extending these simulations to incorporate realistic models of water and other electrostatic effects. In his work on an entirely different current project –particle correlations in flowing suspensions, he performed analogous magic tricks with yet another method, Stokesian dynamics.

German is an unusually versatile young scientist with broad interests and abilities, and an exceptional ability to learn a new field and quickly produce significant results. He is in a particularly advantageous position with respect to the burgeoning field of nano-technology, since his current research addresses the subject, and he knows the necessary theoretical techniques very well. German is a very personable colleague who has already become a resource to the other postdocs and grad students here. He would be an excellent addition to your department, in terms of productivity and new ideas as well as collegiality, and I would give him the strongest possible recommendation for any faculty appointment.

Sincerely yours,

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

Joel Koplik  
Professor of Physics