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Faculty Search Committee  
Department of Physics  
Indiana University  
Swain Hall West 117  
Bloomington, IN 47405-7105

Dear Sir or Madam:

I am writing to enthusiastically support Dmitriy Melnikov's application for a faculty position in your department. I am Professor and Chair in the Department of Physics at Lehigh University and was a member of Melnikov's Ph.D. dissertation committee. I knew Melnikov for about three years and was very familiar with his work at Lehigh.

For his Ph.D. dissertation, Melnikov performed a beautiful analysis of the problem of polarons in semiconductor quantum dots. He independently analysed the literature in the polaron field and quickly developed a unusually mature understanding of the physics relevant to this area. Melnikov's theoretical work was performed at several levels and included both analytical and computational work, demonstrating his broad analytical skills.

While Melnikov was doing this work, it was already clear that he was an outstanding student. (Almost every day at lunch for over two years, Melnikov's advisor, Beall Fowler, would talk about how lucky he was to have Dimitriy working with him.) Nonetheless, the quality of his dissertation and thesis defense really surprised me. Melnikov performed a remarkably complete and insightful study of polarons in quantum dots that resolves several contradictory results in this field. And Melnikov has a deep understanding of the new physics that his theoretical work reveals. Melnikov's defense made it very clear that he had performed this work independently, and at a level that surprised and delighted his advisor. I ended up thinking that Melnikov is sufficiently talented for him to make outstanding contributions to any theoretical problem he works on.

After leaving Lehigh, Melnikov has gone on to pursue his interest in the electronic structure of quantum dots with Professor Chelikowsky at the University of Minnesota and with Professor Leburton at the Beckman Institute. Melnikov has added sophisticated *ab initio* pseudo-potential calculations to his already formidable list of skills to study the electron affinity and ionization potential of nanocrystals and the electronic states of shallow dopants in quantum dots. This is a very hot area with implications for the application of quantum dots for quantum computing.

Dmitriy has excellent personal characteristics. His English language skills are excellent. His dissertation was well written and his command of spoken English is perfect. He gives a clear and well-thought-out technical presentation. He and his wife are a very nice couple and got

along extremely well with the students and faculty in our department. I think you would find him to be an excellent colleague.

Melnikov is an outstanding young theoretical physicist who is making important contributions to an area of physics that is of great current interest. He is talented, ambitious, and highly self motivated. I give Melnikov my highest recommendation.

Sincerely yours,

A handwritten signature in black ink that reads "Michael Stavola". The signature is written in a cursive style with a prominent loop at the end of the last name.

Michael Stavola  
Professor and Chair  
Department of Physics