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October 25, 2011

Recommendation for Yulia Trenikhina

I am happy to provide this letter of recommendation on behalf of Yulia Trenikhina, who is applying to the Fermilab-University joint Ph.D. program. Yulia is a Ph.D. student in the Physics Department at IIT who has completed her coursework and passed the qualifying exam. She has also worked on several research projects with a few faculty at IIT, gaining valuable laboratory experience and a publication. Her laboratory skills include various x-ray scattering and absorption probes such as EXAFS, XANES and XPS. Recently she spent a few months working on crystal growth of semiconductors. She is thus quite familiar with materials characterization, the notion of short-range and long-range order, core-level spectroscopy and many of the basic concepts of condensed matter physics.

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Yulia has sought out a Ph.D. thesis project and contacted Alex Romanenko. She settled on a project to use transmission electron microscopy to study the relationship of surface structure of Nb at the nanoscale to the superconducting RF surface impedance. Given her background, she may also connect such measurements to other state-of-the-art methods to give a better understanding of the relationship of surface chemistry and structure to SRF cavity performance. These efforts will tie in perfectly with the growing effort at FNAL to develop SRF cavities for Project X and a future ILC. Her project is thus timely and of importance.

Yulia has asked me to be her IIT adviser which I am happy to do, however, Alex will be her primary research adviser. My background is in superconductivity and I am currently part of a university/FNAL consortium working on fundamental studies of Nb for SRF development. This collaboration includes Lance Cooley, Alex Romanenko and Denise Ford from N.U.

In summary, Yulia Trenikhina is highly deserving of this joint Ph.D. program award. Her strong background makes her ideally suited for the proposed research project related to SRF cavity development, one of the high priority areas at Fermilab.

Sincerely,

John Zasadzinski
Professor of Physics
Illinois Institute of Technology