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DEPARTMENT OF COMMERCE

International Trade Administration

University of Pittsburgh, et al.

Notice of Consolidated Decision on Applications

for Duty-Free Entry of Scientific Instruments

This is a decision pursuant to Section 6(c) of the Educational, Scientific, and Cultural Materials Importation Act of 1966 (Pub. L. 89-651, as amended by Pub. .106-36; 80 Stat. 897; 15 CFR part 301). Related records can be viewed between 8:30 A.M. and 5:00 P.M. in Room 3720, U.S. Department of Commerce, 14th and Constitution Ave, NW, Washington, D.C.

Comments: None received. Decision: Approved. We know of no instruments of equivalent scientific value to the foreign instruments described below, for such purposes as each is intended to be used, that was being manufactured in the United States at the time of its order.

Docket Number: 12-064. Applicant: University of

Pittsburgh, Pittsburgh, PA 15260. Instrument: Dilution Refrigerator with 18T Solenoid Superconducting Magnet. Manufacturer: Leiden Cryogenics, the Netherlands. Intended Use: See notice at 78 FR 7399-7400, February 1, 2013. Comments: None received. Decision: Approved. We know of no instruments of equivalent scientific value to the foreign instruments described below, for such purposes as this is intended to be used, that was being manufactured in the United States at the time of order. Reasons: The instrument will be used for three purposes: to develop ways for preserving quantum information in a way that is immune to a wide variety of decoherence mechanisms by using predicted topological properties of superconductors in two dimensions, to program fundamental couplings at near-atomic scales and quantum simulation of "metasuperconductors" by using the extreme nanoscale precision with which the $LaAlO_3/SrTiO_3$ interface can be gated, and to develop new mechanisms for the transfer of quantum information between long-lived localized states (nitrogen-vacancy centers) and delocalized states (superconducting resonators). The experiments will combine the unique local control capable with the $LaAlO_3/SrTiO_3$ interface with the natural tendency of $SrTiO_3$ to become superconducting to develop

superconducting structures with vortices that will be manipulated to achieve topologically protected quantum computation, as well as electrostatic programming of the $LaAlO_3/SrTiO_3$ interface with V(x,y) to create new electronic states of matter which themselves can become superconducting. The unique properties of this instrument are the capability of cooling the sample below the superconducting transition temperature (Tc~200mK), to apply large magnetic fields (>18T) to investigate the large spin-orbit present in these samples (Bso~15T), and the ability to orient the sample in any orientation relative to the magnetic fields.

Docket Number: 12-066. Applicant: University of Pittsburgh, Pittsburgh, PA 15260. Instrument: mK Scanning Probe Microscope. Manufacturer: Nanomagnetics, Turkey. Intended Use: See notice at 78 FR 7399-7400, February 1, 2013. Comments: None received. Decision: Approved. We know of no instruments of equivalent scientific value to the foreign instruments described below, for such purposes as this is intended to be used, that was being manufactured in the United States at the time of order. Reasons: The instrument will be used for

three purposes: to develop ways for preserving quantum information in a way that is immune to a wide variety of decoherence mechanisms, by using predicted topological properties of superconductors in two dimensions, to program fundamental couplings at near-atomic scales and quantum simulation of "metasuperconductors" by using the extreme nanoscale precision with which the $LaAlO_3/SrTiO_3$ interface can be gated, and to develop new mechanisms for the transfer of quantum information between long-lived localized states (nitrogen-vacancy centers) and delocalized states (superconducting resonators). The experiments will combine the unique local control capable with the $LaAlO_3/SrTiO_3$ interface with the natural tendency of $SrTiO_3$ to become superconducting to develop superconducting structures with vortices that will be manipulated to achieve topologically protected quantum computation, as well as electrostatic programming of the $LaAlO_3/SrTiO_3$ interface with V(x,y) to create new electronic states of matter which themselves can become superconducting. The unique properties of this instrument are the capability of scanning probe microscopy at base temperature (T<50mK), and to locally (on nanometer scales) gate, modify, and probe nanowire devices and quantum dot arrays.

Docket Number: 13-006. Applicant: Oregon Health and Science University, Portland, OR 97239. Instrument: Electron Microscope. Manufacturer: FEI Company, the Netherlands. Intended Use: See notice at 78 FR 13860-13861, March 1, 2013. Comments: None received. Decision: Approved. We know of no instruments of equivalent scientific value to the foreign instruments described below, for such purposes as this is intended to be used, that was being manufactured in the United States at the time of order. Reasons: The instrument will be used to obtain a powerfully detailed picture of the architecture of the molecular signals that function in normal and diseased tissues at the molecular, cell, tissue and organism levels.

The data will be used to improve management of human diseases including cancer, cardiovascular disease, immunodeficiency and dementia.

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Director
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Import Administration

June 11, 2013
Date

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