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DEPARTMENT OF COMMERCE

International Trade Administration

University of Pittsburgh, et al.

Notice of Decision on Application

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. L. 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.

Docket Number: 15-044. Applicant: University of Pittsburgh, Pittsburgh, PA 15260. Instrument: Scios Dual Beam Field Emission Scanning Electron Microscope. Manufacturer: Scios, Czech Republic. Intended Use: See notice at 81 FR 11517, March 4, 2016. 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 reveal the surface and sub-surface microstructure metrics of structural materials such as steels, Ni-based superalloys, Al-, Ti-, Mn-base and other specialty alloys, functional materials based on ceramic, metal and semiconducting thin films, particulates and composites.

Docket Number: 15-049. Applicant: University of Maryland College Park, College Park, MD 20742. Instrument: Laser lithography system Photonic Professional GT and accessories. Manufacturer: Nanoscribe GmbH, Hermon Von Hermholtz Platz 1, Germany. Intended Use: See notice at 81 FR 11517, March 4, 2016. 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 fundamental capabilities of the instrument target the nanoscale fabrication of complex 3-dimensional polymer components and systems. The instrument will be used for the characterization and optimization of fabrication resolution and precision for specific applications and device and

system level characterization of components manufactured using the nanoscribe tool. It will be used to perform research into the nanoscale patterning of photoactive polymer materials, including epoxy-based photoresists. Unique features of this instrument include two photon polymerization of various UV-curable photoresists, two photon exposure of common positive tone photoresists, and the highest resolution available for a 3D printer.

Docket Number: 15-055. Applicant: Rutgers University, Piscataway, NJ 08854. Instrument: Opitcal Floating Zone Furnace. Manufacturer: Crystal Systems Cooperation, Japan. Intended Use: See notice at 81 FR 32724, May 24, 2016. 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 grow high quality bulk single crystals of a variety of complex quantum materials including multiferroics, ferroelectrics and low-symmetry magnets. Research projects will include the duality between FR and PUA states in hexagonal manganites, the duality between Ising triangular antiferromagnetism and improper

ferroelectricity in hexagonal systems, the domains and domain walls in other polar or chiral magnets, the domains and domain walls in new hybrid improper ferroelectrics, the domains and domain walls in metastable phases at the phase boundaries, and magnetic skyrmion in non-centrosymmetric magnets. The instrument is equipped with 5 high power (1000 W in total) continuous wavelength laser diodes as a heating source. Five lasers ensure temperature homogeneity along the azimuthal direction around the crystal rod to be greater than 95%. The maximum temperature gradient along the growth direction is greater than 150 degrees Celsius/mm. Crystal growth can go from extremely stable and slow growth to very rapid quenching mode, 0.01 to 300 mm/h. This enables the growth of incongruently melting and highly evaporating materials.

Docket Number: 15-058. Applicant: UChicago Argonne, Lemont, IL 60439-4873. Instrument: IEX ARPES Cryo-Manipulator. Manufacturer: Omnivac, Hansjoerg Ruppender, Germany. Intended Use: See notice at 81 FR 32724-25, May 24, 2016. 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 cool and position single crystal and thin film samples in an angle-resolved photoemission spectroscopy (ARPES) chamber. ARPES is used to map the electronic band structure of material. Samples include high-temperature superconductors, graphene, and other low dimensional materials, metals and complex oxides. The instrument's unique features include ultra-high vacuum compatible, six-axes of motion with a specified range x: +/- 10mm, 1µm, +/- 0.05µm, y: +/- 10mm, 1µm, +/- 0.05µm, z: 300mm, 1µm, +/- 0.05µm, polar rotation: 360 degrees, 0.005 degrees, 0.0001 degrees, flip rotation: -15/+60 degrees, .1 degree, 0.05 degrees, azimuthal rotation: +/-90 degrees, .1 degree, 0.05 degrees, a low base temperature of 5.5K and high vibrational stability (motion at the sample < 500 nm).

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Subsidies Enforcement Office
Enforcement and Compliance

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Date

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