BILLING CODE 3510-DS-P

DEPARTMENT OF COMMERCE

International Trade Administration

Notice of Decision on Application for Duty-Free Entry of Scientific Instruments; Rice University, et.al

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). On September 28, 2021, the Department of Commerce published a notice in the *Federal Register* requesting public comment on whether instruments of equivalent scientific value, for the purposes for which the instruments identified in the docket(s) below are intended to be used, are being manufactured in the United States. *See Application(s) for Duty-Free Entry of Scientific Instruments, 86 FR 53634 -35, September 28, 2021* (*Notice)*. We received no public comments.

Docket Number: 21-001. Applicant: Rice University, 6100 Main Street, Houston, TX 77005. Instrument: LightCrafter 4500 EVM. Manufacturer: Digi-Key Electronics, China. Intended Use: The LightCrafter 4500 will be used in an ongoing research study to develop a compact optical mapping scope that uses Digital Light Processing (DLP) technology to capture white light and auto-fluorescence images and actively project onto the oral mucosa a map highlighting areas at high risk for oral dysplasia and cancer, based on: loss of collagen fluorescence (a signal of invasion & metastasis) and alterations in epithelial NAD(P)H and FAD fluorescence (a signal of de-regulated cellular energetics). With this device, we will design and assemble an optical system that allows for wide field imaging of the oral cavity, where the LightCrafter 4500 is aligned with the camera such that any area that can be imaged can also be projected upon. We will develop tracking algorithms to adjust the projected map as

needed to ensure accurate positioning despite patient movement. The objective is to develop an optical imaging system that will detect high-risk areas of the oral mucosa and project high-risk maps onto the oral mucosa to guide clinicians on where to take a biopsy.

Docket Number: 21-002. Applicant: Drexel University, 3401 Market Street, Philadelphia, PA 19104. Instrument: Light Microscope with motorized stage, attached camera and image – capturing hardware and software. Manufacturer: Info in Images Ltd., United Kingdom. Intended Use: To develop a novel research tool for scientists studying microscopic algae and to facilitate access to the holdings of the Diatom Herbarium at the Academy of Natural Sciences of Drexel University, a non-profit public museum with a mission of research in environmental conservation and public education. This customized automated microscope side-scanning system will be used to create high-resolution images of microscopic organisms on permanent slides that could be viewed and studied online using a virtual microscopy application. Digital images of the slides, containing millions of individual specimens of microorganisms and representing snapshots of their assemblages, will be served online to support research programs focused on environmental change and its effects on aquatic biota. The applications based on images acquired with this slide-scanning system will be used to increase the efficiency of water quality and ecosystem health monitoring in rivers, lakes, and coastal areas of the ocean.

Docket Number: 21-003. Applicant: UChicago Argonne LLC, Operator of Argonne National Laboratory, 9700 South Cass Avenue, Lemont, IL 60439-4873. Instrument: A:VC 19 Photon Extraction Vacuum Chambers. Manufacturer: Strumenti Scientific CINEL S.R.L., Italy. Intended Use: These components are required to complete the assembly of the Advanced Photon Source upgrade storage ring vacuum system. The APS-U storage ring vacuum system is approximately 1.1-km in circumference and will store the electron and photon beams in an

ultra-high vacuum (UHV) environment. The materials/phenomena that are studied vary widely from material properties analysis, protein mapping for pharmaceutical companies, X-ray imaging and chemical composition determination, to name a few. These components will be used exclusively for scientific research for a minimum of 5 years at Argonne National Laboratory. The properties of the materials studied include but are not limited to grain structure, grain boundary and interstitial defects, and morphology. These properties are not only studied at ambient environments but also under high pressure, temperature, stress and strain. The objective is to further the understanding of different materials and material properties.

Docket Number: 21-004. Applicant: William Marsh Rice University, 6100 Main Street, Houston, TX 77005. Instrument: Angle-Resolved Photoemission Spectroscopy System. Manufacturer: Fermion Instruments, China. Intended Use: The technique of angle-resolved photoemission spectroscopy is a very specialized technique used to directly image the electronic structure of synthesized single crystalline materials or thin film materials. This technique is mainly used to study fundamental physical and electrical properties of materials, how electrons interact with each other leading to the insulating, metallic, or superconducting properties of materials for fundamental research. The measurement of electronic structure will provide important information on the fundamental physical origin of why a material is a good conductor or insulator or a superconductor. This will be beneficial towards new physics theories about solid state materials for academic purposes.

Docket Number: 21-005. Applicant: UChicago Argonne LLC, Operator of Argonne National Laboratory, 9700 South Cass Avenue, Lemont, IL 60439-4873. Instrument: POLAR Vertical Double Crystal Monochromator. Manufacturer: Strumenti Scientific CINEL, S.R.L., Italy. Intended Use: The instrument will be used as a monochromator for the Polar beamline at the Advanced Photon Source upgrade. The Polar beamline makes use of polarized synchrotron radiation to investigate magnetic properties of materials using a variety of spectroscopic and

scattering methods. Materials investigated are scientific samples especially grown to answer specific scientific questions and to study basic magnetic and electric material properties. The device will be used exclusively for scientific research for a minimum of 5 years at Argonne National Laboratory. The objective is to further the understanding of material properties and to be able to tailor material properties to achieve specific magnetic and electron behavior.

Docket Number: 21-006. Applicant: Rutgers, The State University, 65 Davidson Road, Piscataway, NJ 00854. Instrument: SIPAT Crystal Grower JGD-500-1 System. Manufacturer: Sipat Co., Ltd., Canada. Intended Use: The instruments will only be used for the study and basic understanding of the physical properties of oxide and/or metallic materials, various physical phenomena based on strongly correlated materials such as high temperature superconductors, Topological insulators, or Multiferroics. The growth of new materials will be conducted which have unique electric and magnetic properties using purchased crystal grower. To identify grown materials, we will employ x-ray diffraction and Laue. The high-quality crystals will be further investigated with a physical property measurement system and Magnetic property measurement system to obtain its electric and magnetic properties in varying conditions of temperature, electric and magnetic fields.

Docket Number: 21 -007. Applicant: Oregon State University, 100 Wiegand Hall, 3051 SW Campus Way, Corvallis, OR 97331. Instrument: Radio Frequency Heating System. Manufacturer: FOSHAN JIYAN HIGH FREQUENCY EQUIP CO., LTD., China. Intended Use: The instrument will be used for studying the phenomena of radio frequency (FR) drying of food materials and understanding the effectiveness in comparison with conventional hot-air drying method. The objectives to be studied: (a) to investigate drying efficiency of radio frequency at various operation conditions and compare with conventional hot-air drying to reduce drying time/cost and improve product quality, (b) to evaluate radio frequency heating for other application in food processing, such as pasteurization, deshelling and roasting of nuts, and

drying food processing byproducts. Analytical techniques will be used to obtain quantitative data from the experiments and analyzed statistically to draw valuable conclusions.

Docket Number: 21-008. Applicant: University of North Dakota, 266 Upson Hall II, 243 Centennial Drive, Grand Forks, ND 58202-8359. Instrument: Laser metal deposition system. Manufacturer: InssTek, South Korea. Intended Use: Materials to be used are elemental pure metal powders or alloyed metal powders, the research goal will be in-situ alloying of multiple different types of elemental powders (up to six) in the laser melting pool. The primary interest of materials is Inconel 625 alloy, which will be built using the in-situ alloying of commercially pure elemental powders, they are Cr, Mo, Nb, Fe, and Ni powders, and have the diameter ranging from 45 um to 150 um. After material is prepared, the energy-dispersive X-ray spectroscopy (EDS) will be used to analyze the chemical composition and elemental distribution, and the electron backscatter diffraction (EBSD) will be applied to observe the crystal orientation and grain structure. The objective is to broaden the material availability for AM and to explore its full potential.

Docket Number: 21-009. Applicant: Yale University, BCT326, 15 Prospect Street, New Haven, CT 06511. Instrument: 1.25W@4K G-M Cryocooler. Manufacturer: CSIC PRIDE (NANJING) CRYOGENIC TECHNOLOGY CO., China. Intended Use: The instrument will be used to research on superconducting films synthesized in our lab. These phenomena can only be brought to life when cooled to cryogenic temperatures created with liquid helium. The transition temperature (Tc) and magnetic susceptibility of our superconductor samples from the resistive normal state to the zero-resistance superconducting states will be measured. The instrument would slowly cool the sample to low temperature (4 K = -269^{o} C) and measure its resistance and magnetic susceptibility at the same time to find the transition temperature Tc. This cryocooler will help to cool our sample from room temperature to 4 K, which is 269 ^{o}C below the freezing

point in a controlled way. The cooling power required here is essential to ensure that we can reach and maintain at 4 K temperature. The small formfactor and vacuum-compatible design is also required for compatibility reasons.

Dated: November 1, 2021.

Richard Herring,
Director, Subsidies Enforcement,
Enforcement and Compliance.

[FR Doc. 2021-24184 Filed: 11/4/2021 8:45 am; Publication Date: 11/5/2021]