

FCR 13

Office of the President
February 17, 2017

Members, Board of Trustees:

PATENT ASSIGNMENT REPORT

Recommendation: that the Board of Trustees accept the patent assignment report for the period October 1, 2016 – December 31, 2016.

Background: At its March 1997 meeting, the Board of Trustees authorized the University of Kentucky Research Foundation to conduct all future copyright and patent filings and prosecutions. Quarterly reports on patent and copyright applications are to be submitted to the Finance Committee of the Board.

Action taken: Approved Disapproved Other_____

PATENT ASSIGNMENTS
FOR THE PERIOD OCTOBER 1, 2016, TO DECEMBER 31, 2016

Patents

The following assignments on behalf of the Board of Trustees of the University of Kentucky Research Foundation have been executed:

1. **U.S. Patent Application Serial Number: 15/283,697**
Filed: October 3, 2016
Title: Solvent-Free Dry Powder-Coating Method for Electrode Fabrication
Inventors: Yang-Tse Cheng (Chemical and Materials Engineering), Susan A. Odom (Chemistry), Mohanad N. Al-Shroofy (Chemical and Materials Engineering), Kozo Saito (Mechanical Engineering), Qinglin Zhang and Jiagang Xu (Chemical and Materials Engineering)
Technical Description: The invention relates to methods for fabricating battery electrodes by electrostatic dry powder-coating processes.
Summary: This invention offers an approach to replacing several costly and environmentally unfriendly manufacturing steps in the conventional electrode fabrication process with a low-cost, innovative and environmentally-friendly dry-coating process. This invention integrates materials for high energy and high power density electrochemical energy storage and dry power-coating processes for making protective, durable coatings. This method of fabricating an electrode involves electrostatic spray deposition of a powder mixture on a surface, wherein the powder mixture comprises numerous combinations of an active material, a binder and an electrically conductive material. Benefits include reducing the cost of electrode manufacturing and enabling novel electrode compositions and structures.

2. **U.S. Patent Application Serial Number: 15/352,358**
Filed: November 15, 2016
Title: Guiding Sheath System and Method of Use
Inventor: David Jon Minion (General Surgery)
Technical Description: This invention relates to the field of catheters.
Summary: Guiding sheaths, also known as guiding catheters, are used to introduce and deliver endovascular devices such as stents and grafts to their intended destination in the vascular system. This invention discloses a tethered, adjustable connection at the end of the sheath to direct and firmly maintain the end of the sheath in a vector that is different than that of the main shaft of the guiding sheath, thus making the tethered guiding sheath more capable of being manipulated and maintained in various shapes after introduction to the vasculature. The invention also discloses a method of delivering the disclosed device.

3. **U.S. Patent Application Serial Number: 15/352,516**
Filed: November 15, 2016
Title: System and Method for In-Situ Formation of Scallops in an Endoluminal Graft
Inventor: David Jon Minion (General Surgery)

Technical Description: This invention relates to the design of endoluminal grafts.

Summary: Endoluminal grafts, or endografts, are medical devices designed to treat vascular pathology such as aneurysms or dissections. The invention discloses a system for in-situ formation of scallops during the delivery and deployment of an endograft, thereby enduring proper alignment of the scallop and obviating the need for custom manufacturing. The invention also discloses a method of delivering the disclosed device.

4. **U.S. Patent Application Serial Number: 15/366,610**

Filed: December 1, 2016

Title: Liquid Phenothiazine Catholytes for Non-Aqueous Redox Flow Batteries

Inventors: Susan A. Odom, Matthew D. Casselman and Aman Preet Kaur (Chemistry)

Technical Description: This invention relates to new compositions of catholytes in redox flow batteries.

Summary: Increased reliance on renewable energy supplies drives the demand for energy storage solutions connected to the electrical grid. Of particular interest are redox flow batteries (RFBs). Phenothiazines are generally stable, electron-donating electro-active materials with potential use in energy collection and storage applications and in electrochemically mediated synthesis. To be practical as electron-donating electro-active catholytes for non-aqueous redox flow batteries, solutions of high capacity are required. This invention provides highly soluble, liquid phenothiazines containing methoxy-terminated ether and alioether substituents with high diffusion coefficients and robust performance in electrochemical measurements. Further, these catholyte solutions can be synthesized in one step from commercially-available starting materials.

5. **U.S. Patent Application Serial Number: 15/370,041**

Filed: December 6, 2016

Title: Design and Synthesis of Metal Oxide Surfaces and Interfaces with Crystallographic Control Using Solid-Liquid-Vapor Etching and Vapor-Liquid-Solid Growth

Inventors: Beth S. Guiton and Lei Yu (Chemistry)

Technical Description: This invention relates to a process of forming nanowires within a crystalline matrix.

Summary: This invention discloses a method for synthesizing nanocomposite aligned nanowires within a crystalline matrix. The method involves depositing at least two metal nanodroplets on the surface of the crystalline matrix, etching a negative nanowire into the surface by solid-liquid-vapor etching with the metal nanodroplets, and filling in the negative nanowire by vapor-liquid-solid growth with a reactant vapor and the metal nanodroplets to form a nanowire.

Patent Activities

Fiscal year to date as of December 31, 2016

Number of Patent Applications	5
Number of Patents Issued	25
Patent Realized Income	\$1,300,284