

TUSKEGEE UNIVERSITY PATENTS



Agriculture & Food Systems

Tuskegee researchers have developed innovative technologies that improve agricultural production, resource recovery, and sustainable farming practices. These patents support food security, environmental stewardship, and more efficient agricultural systems.

Movable Root Contact-Pressure Plate Assembly for Hydroponic System

Inventors: Walter Hill, Carlton Morris, Conrad Bonsi, and Philip Loretan

Patent No.: 4,860,490

Patent Date: August 29, 1989

Movable Root Contact-Pressure Plate Assembly for Hydroponic System

Inventors: Walter Hill, Carlton Morris, Conrad Bonsi, and Philip Loretan

Patent No.: 5,216,836

Patent Date: June 8, 1993

Recovery of Phosphorus from Poultry Litter

Inventor: Kokoasse Kpombluekou-A

Patent No.: 8,936,663 B2

Patent Date: January 20, 2015

□ Biomedical & Health Sciences

These patented discoveries advance human health through novel therapeutic compounds, cancer treatment technologies, wound-healing applications, and medical device innovations designed to improve patient outcomes and quality of life.

Lytic Peptides Having Anti-Proliferative Activity Against Prostate Cancer Cells

Inventors: Clayton Yates, Jesse Jaynes, and Timothy Turner

Patent No.: 8,461,118 B2

Patent Date: June 11, 2013

Chemokine Derived Peptides that Bind with Chemokine Receptor CXCR3

Inventors: Cecilia Yates-Binder, Timothy Turner, Alan Wells, Jesse Jaynes, and Richard Bodnar

Patent No.: 8,734,775 B2

Patent Date: May 27, 2014

Anticancer Treatment Methods Involving Analogs and Derivatives of Indole Compounds

Inventors: Temesgen Samuel, Teshome Yehualaeshet, Tesfaye Serbessa, and Khalda Fadlalla

Patent No.: 9,877,949 B2

Patent Date: January 30, 2018

The Manifold Scalpel Handle

Inventors: Deidre Quinn-Gorham, Sharanabasaweshwara Asundi, and Jimesh Bhagatji

Patent No.: 11,013,529 B2

Patent Date: May 25, 2021

Small Peptide Compositions and Uses Thereof

Inventors: Jesse Jaynes and Cecelia C. Yates

Patent No.: 11,338,017

Patent Date: May 24, 2022

Methods and Composites for the Identification of Epithelial to Mesenchymal Breast Cancer

Inventor: Deepa Bedi

Patent No.: 11,624,748 B2

Patent Date: April 11, 2023



Biotechnology & Pathogen Detection

Tuskegee University's biotechnology innovations enhance disease surveillance, food safety, and public health by providing advanced tools for pathogen detection, bacterial analysis, and diagnostic applications.

Capillary Viscometers for Use with Newtonian and Non-Newtonian Fluids

Inventors: Kyung C. Kwon, Nader Vahdat, Tamara Floyd-Smith, Legend Burge, and Paul Jones
Patent No.: 7,730,769 B1
Patent Date: June 8, 2010

Detection of Biothreat and Foodborne Pathogens

Inventors: Abdela Woubit, Temesgen Samuel, and Teshome Yehualaeshet
Patent No.: 8,883,488
Patent Date: November 11, 2014

Modification of PCR Sample Preparation to Differentiate Live and Dead Bacteria

Inventors: Teshome Yehualaeshet, Temesgen Samuel, Tsegaye Habtemariam, and Woubit Abdela
Patent No.: 9,434,976 B2
Patent Date: September 6, 2016

Genetic Array for Simultaneous Detection of Multiple Salmonella Serovars

Inventors: Woubit Abebe, Khaled Aldahami, Sayma Afroj, Temesgen Samuel, and Gopal Reddy
Patent No.: 11,447,834 B2
Patent Date: September 20, 2022



Materials, Nanotechnology & Sustainability

Researchers have created advanced biomaterials, polymer technologies, and nanotechnology-based solutions that offer environmentally responsible alternatives for manufacturing, packaging, and industrial applications.

Nanostructured Thermoplastic Polyimide Films

Inventor: Heshmat Aglan
Patent No.: 9,034,426
Patent Date: May 19, 2015

Nanostructured Thermoplastic Polyimide Films

Inventor: Heshmat Aglan
Patent No.: 10,907,026 B2
Patent Date: February 2, 2021

Nano Engineered Eggshell Toughened Flexible Synergistic Bioplastic Blend

Inventors: Vijaya Rangari and Boniface Tiimob
Patent No.: 11,078,359 B2
Patent Date: August 3, 2021

Nanocellulosic Compositions

Inventors: Michael Curry and Donald White
Patent No.: 11,084,907 B2
Patent Date: August 10, 2021

Crystalline Nano Cellulose Reinforced Chitosan-Based Films

Inventors: Vijaya Rangari, Samia Islam, and Woubit Abdela
Patent No.: 11,365,297
Patent Date: June 21, 2022

Nano Engineered Eggshell Flexible Biopolymer Blend Film

Inventor: Vijaya Rangari
Patent No.: 11,613,648 B1
Patent Date: March 28, 2023

Water, Sensors & Environmental Engineering

These inventions address critical environmental challenges through advanced water-filtration systems, nanosensor technologies, and sustainable engineering solutions that promote healthier communities and ecosystems.

Portfolio Filtration System and Methods for Improved Water Filtration

Inventors: Vijaya Rangari, Boniface Tiimob, Vitus Apalangya, Shaik Jeelani, and Temesgen Samuel
Patent No.: 10,583,417 B2
Patent Date: March 10, 2020

Carbon Nanofiber Sensor for Non-Enzymatic Glucose Detection

Inventors: Tamara Floyd Smith, Julaunica Tigner, and Jessica Koehne
Patent No.: 11,035,820 B2
Patent Date: June 15, 2021

Filtration System and Methods for Improved Water Filtration

Inventors: Vijaya Rangari, Boniface Tiimob, Vitus Apalangya, Shaik Jeelani, and Temesgen Samuel
Patent No.: 11,325,099 B2
Patent Date: May 10, 2022

Mechanical, Transportation & Energy Systems

From transportation technologies to renewable energy innovations, these patents demonstrate Tuskegee University's commitment to developing practical engineering solutions that improve infrastructure, efficiency, and energy sustainability.

Quick Weld-Repair of Railhead Defects

Inventor: Heshmat Aglan
Patent No.: 9,358,628 B2
Patent Date: June 7, 2016

Internal Combustion Engine Propulsion Method and Corresponding Transmission Design

Inventor: Shaowei Gong
Patent No.: 10,295,021
Patent Date: May 21, 2019

System and Method for Active Injection into Fluid Streams

Inventor: John Solomon

Patent No.: 11,230,996 B2

Patent Date: January 25, 2022

Photovoltaic Cells Based on Donor and Acceptor Nano-Particulate Conjugates

Inventors: Naga Korivi and Kalyan Das

Patent No.: 11,374,188

Patent Date: June 28, 2022
