



US 20230069248A1

(19) **United States**  
(12) **Patent Application Publication**  
**Hodgkins et al.**

(10) **Pub. No.: US 2023/0069248 A1**

(43) **Pub. Date: Mar. 2, 2023**

(54) **PLATINUM NANOPARTICLE FUNCTIONALIZED FIBROUS HIERARCHICAL ZEOLITE AND METHOD OF MAKING THE SAME**

(21) Appl. No.: 17/412,773

(22) Filed Aug. 26, 2021

**Publication Classification**

(71) Applicants: Saudi Arabian Oil Company, Dhahran (SA); King Abdullah University of Science and Technology, Thuwal (SA)

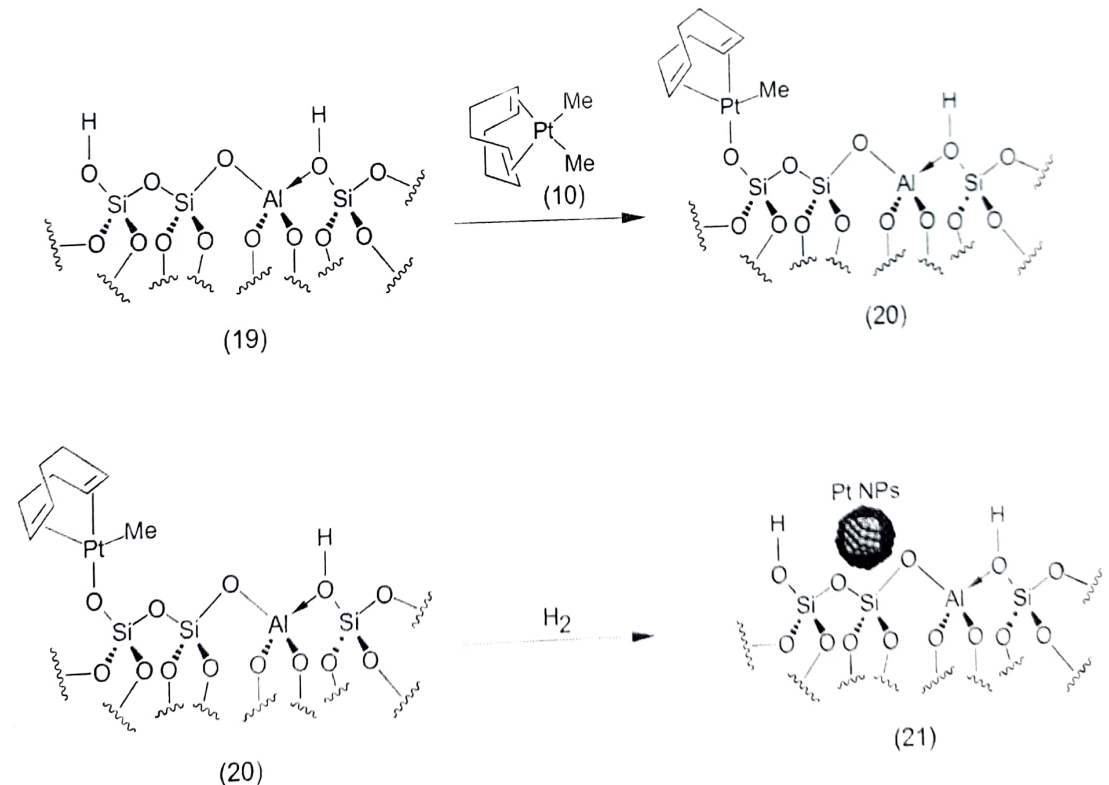
(51) Int. Cl. *C01B 39/48* (2006.01)

(72) Inventors: Robert Peter Hodgkins, Dhahran (SA); Omer Refa Koseoglu, Dhahran (SA); Jean-Marie Maurice Basset, Thuwal (SA); Kuo-Wei Huang, Thuwal (SA); Anissa Bendjeriou Sedjerari, Thuwal (SA); Sathiyamoorthy Murugesan, Thuwal (SA); **Manoj Kumar Gangwar, Thuwal (SA)**

(52) U.S. Cl. *CPC* *C01B 39/48* (2013.01); *C01P 2004/64* (2013.01)

(57) **ABSTRACT**

A functionalized fibrous hierarchical zeolite includes a framework comprising aluminum atoms, silicon atoms, and oxygen atoms, the framework further comprising a plurality of micropores and a plurality of mesopores. A plurality of nanoparticles comprising platinum are immobilized on the framework.



*M. Kumar*  
08/04/24  
Dr. Manoj Kumar Gangwar  
Assistant Professor  
Dept. of Chemistry  
University of Allahabad  
Prayagraj-211002