

**November 16 – 21, 2014**Atlanta Marriott Marquis & Hilton Atlanta  
Atlanta, GA[Search](#) [Meeting At-A-Glance](#) [Browse...](#) [Create an Itinerary](#) [Annual Meeting](#) [Additional Resources](#)[AIChE Home Page](#)**Nearby Restaurants****Social Media****385024 H<sub>2</sub>S Chemisorption on Copper-ETS-2: Experiment and Modeling****Tuesday, November 18, 2014**

Galleria Exhibit Hall (Hilton Atlanta)

**Sabereh Rezaei**<sup>1</sup>, Adolfo Avila<sup>1</sup> and Steven Kuznicki<sup>2</sup>, (1)University of Alberta, Edmonton, AB, Canada, (2)Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB, Canada

Copper supported on Engelhard Titanosilicate-2 (ETS-2) has been shown to be a promising adsorbent for deep H<sub>2</sub>S removal (to sub-ppm levels) for gas purification applications at room temperature. Because of the high external surface area and the cation exchange capacity of ETS-2, Cu ions are highly dispersed and very accessible to H<sub>2</sub>S molecules. In this study, H<sub>2</sub>S column breakthrough experiments are analyzed by a proposed model based on the rigorous mass balance equations for the fluid and solid phases. The model also includes the chemical reaction term, which is affected by the deactivation of the solid phase. Temperature-programmed desorption tests provided insight on the material regeneration as well as on the characteristics and magnitudes of the H<sub>2</sub>S-material interactions.

**Extended Abstract:** File Not Uploaded

See more of this Session: [Poster Session: Fundamentals and Applications of Adsorption and Ion Exchange](#)  
See more of this Group/Topical: [Separations Division](#)