Qinglin Du

Tel: 86 13941166011 • Email: hust_dql@163.com

EDUCATION

Huazhong University of Science and Technology (HUST) 09/2021 - 06/2025 (Expected)

- ✓ Bachelor of Engineering in Energy and Power Engineering
- ✓ GPA: 4.13/5.0; Ranking: 39/182(all students in my grade)

PUBLICATIONS & PATENT

- ✓ Zhang, X., Liu, W., Peng, P., Zhang, Z., **Du, Q.**, Shi, J., & Deng, L. (2023). A Dual Functional Sorbent/Catalyst Material for In-Situ CO_2 Capture and Conversion to Ethylene Production. *Fuel*, 351(33):128701.
- ✓ Zhang, X., Liu, W., Peng, P., Shi, J., **Du, Q.**, et al. Preparation and Application of Dual Functional Catalysts for In-Situ CO_2 Capture of Ethylene Preparation, (Application No.: 2023102240352), accepted in March 2023

RESEARCH EXPERIENCE

Researcher, The Xu Research Group, State Key Laboratory of Coal Combustion, HUST 09/2022-Present

Dual Functional Materials for In-Situ CO_2 Capture and Conversion to Ethylene *Advisor: Prof. Zijian Zhou*

Sub-project I: Influence of Inert Carrier CeO_2 on CaO Adsorption and Mg-Based Spinel Catalysis Applied to CO_2 Oxidative Dehydrogenation Ethane (CO_2-ODHE)

- ✓ Doped adsorbent CaO with different mass fraction of inert carrier CeO_2 and prepared Mn doped Mg-Cr catalyst using sol-gel method
- ✓ Used co-precipitation method to prepare Cr, Fe, Ga doped Mg-Al spinel catalysts, and $MgFe_xAl_{2-x}O_4$ catalysts doped with different Fe content

Sub-project II: Catalytic Performance of CeO_2 with Different Microstructures after Loading Catalyst Cr_2O_3

- ✓ Prepared CeO_2 with different microforms using the hydrothermal method, and loaded them with catalyst Cr_2O_3
- ✓ Measured the specific surface area and pore volume of sample catalysts using BET and explored the catalytic performance with SEM, XPS, CO_2/NH_3 - TPD and other characterization methods

Sub-project III: Performance Testing of Dual Functional Sorbent/Catalyst Material

- ✓ Tested adsorption and desorption performance of CaO through a thermal gravimetric analyzer (TGA)
- ✓ Simulated real industrial exhaust gas environment for capture and conversion reactions in an electronic furnace
- ✓ Built an experimental platform and used GC-990 online gas chromatograph to test the reactivity of materials
- ✓ Calibrated the TCD and FID markers of the chromatograph with standard gas and learned working principles

PROJECT EXPERIENCE

Design of A Two-stage Cylindrical Gear Reducer 12/2023 - 01/2024

- ✓ Designed a two-stage cylindrical gear reducer in a belt conveyor drive that meets national standards
- ✓ Drew assembly and part drawings using CAD

Mechanical Manufacturing and Process Design 02/2023 - 06/2023

- ✓ Produced metal products by modeling on UG NX and programing on Huazhong CNC 5-axis machining system
- ✓ Used SolidWorks for modeling and manufactured models with 3D printing technology

HONORS & AWARDS

- ✓ ***First Prize (2.29%)***, The 16th National Science Contest on Energy Saving & Emission Reduction 08/2023
- ✓ ***Second Prize (5.32%)***, The 9th Academic and Technological Works Competition, HUST 06/2023
- ✓ ***Outstanding Undergraduate Scholarship (1.93%)***, Institute of Physics CAS 05/2023
- ✓ ***Dean's Scholarship (15%)***, Professional Industry Cognitive Research Competition, HUST 12/2021

ADDITIONAL INFORMATION

- ✓ Computer Skills: CAD, SolidWorks, Inventor, Origin, UG NX, CAM, C++, Photoshop
- ✓ Interests: Oboe (Grade 10), Brush Calligraphy (Grade 9), Badminton