

## Accepted Manuscript

Title: Activated polypyrrole-derived carbon spheres for superior CO<sub>2</sub> uptake at ambient conditions

Authors: Arosha C. Dassanayake, Mietek Jaroniec

PII: S0927-7757(18)30272-3  
DOI: <https://doi.org/10.1016/j.colsurfa.2018.04.002>  
Reference: COLSUA 22400



To appear in: *Colloids and Surfaces A: Physicochem. Eng. Aspects*

Received date: 7-2-2018  
Revised date: 2-4-2018  
Accepted date: 3-4-2018

Please cite this article as: Dassanayake AC, Jaroniec M, Activated polypyrrole-derived carbon spheres for superior CO<sub>2</sub> uptake at ambient conditions, *Colloids and Surfaces A: Physicochemical and Engineering Aspects* (2018), <https://doi.org/10.1016/j.colsurfa.2018.04.002>

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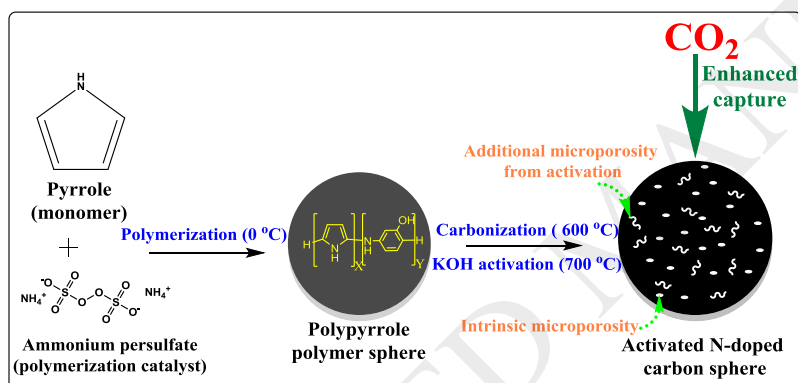
# Activated polypyrrole-derived carbon spheres for superior CO<sub>2</sub> uptake at ambient conditions

Arosha C. Dassanayake and Mietek Jaroniec\*

Department of Chemistry and Biochemistry, Kent State University, Kent, Ohio 44242, USA

\* Corresponding author: Tel: +1 330 672 3790; Fax: +1 330 672 3816; E-mail: jaroniec@kent.edu

## Graphical Abstract



## Abstract

High inherent microporosity of the polypyrrole-derived carbon spheres was further optimized by controlled KOH activation with the intention to achieve high CO<sub>2</sub> adsorption capacity. After activation the spherical morphology and nitrogen doping were retained and the volume of micropores, especially ultramicropores, was noticeably enhanced. High ultramicropore volumes of these spheres resulted in the superior CO<sub>2</sub> uptakes under ambient pressure, reaching 7.73 mmol g<sup>-1</sup> and 5.42 mmol g<sup>-1</sup> at 0 °C and 25 °C, respectively. This study shows an effective way for designing of carbon spheres with high CO<sub>2</sub> adsorption capacity and selectivity.

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