

## Accepted Manuscript

Title: Transition metal-nitrogen co-doped carbide-derived carbon catalysts for oxygen reduction reaction in alkaline direct methanol fuel cell

Authors: Sander Ratso, Ivar Kruusenberg, Maike Käärrik, Mati Kook, Rando Saar, Petri Kanninen, Tanja Kallio, Jaan Leis, Kaido Tammeveski



PII: S0926-3373(17)30676-8  
DOI: <http://dx.doi.org/doi:10.1016/j.apcatb.2017.07.036>  
Reference: APCATB 15868

To appear in: *Applied Catalysis B: Environmental*

Received date: 20-3-2017  
Revised date: 8-6-2017  
Accepted date: 13-7-2017

Please cite this article as: Sander Ratso, Ivar Kruusenberg, Maike Käärrik, Mati Kook, Rando Saar, Petri Kanninen, Tanja Kallio, Jaan Leis, Kaido Tammeveski, Transition metal-nitrogen co-doped carbide-derived carbon catalysts for oxygen reduction reaction in alkaline direct methanol fuel cell, Applied Catalysis B, Environmental <http://dx.doi.org/10.1016/j.apcatb.2017.07.036>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Transition metal-nitrogen co-doped carbide-derived carbon catalysts for oxygen reduction reaction in alkaline direct methanol fuel cell

Sander Ratso<sup>a</sup>, Ivar Kruusenberg<sup>a</sup>, Maike Käärik<sup>a</sup>, Mati Kook<sup>b</sup>, Rando Saar<sup>b</sup>, Petri Kanninen<sup>c</sup>, Tanja Kallio<sup>c</sup>, Jaan Leis<sup>a</sup>, Kaido Tammeveski<sup>a,\*</sup>

<sup>a</sup>*Institute of Chemistry, University of Tartu, Ravila 14a, 50411 Tartu, Estonia*

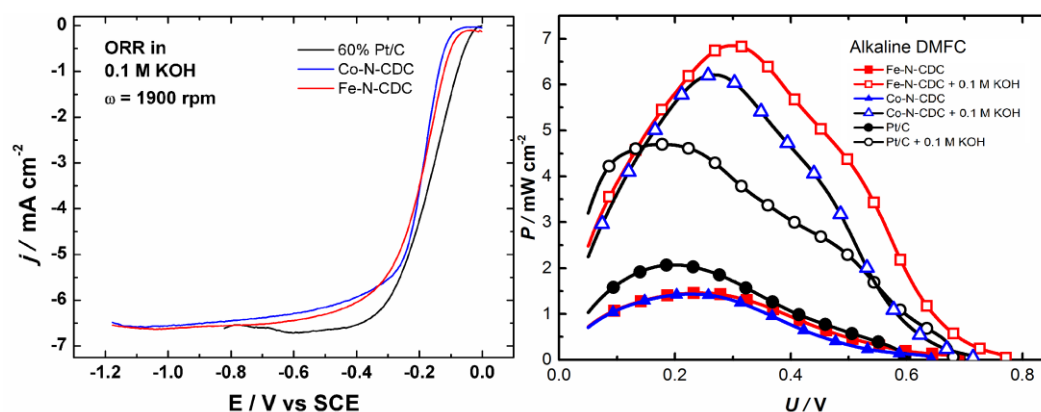
<sup>b</sup>*Institute of Physics, University of Tartu, W. Ostwald Str. 1, 50411 Tartu, Estonia*

<sup>c</sup>*School of Chemical Engineering, Aalto University, FI-00076, Aalto, Espoo, Finland*

\*Corresponding author. Tel.: +372 7375168; fax: +372 7375181.

**E-mail address:** kaido.tammeveski@ut.ee (K. Tammeveski).

## Graphical abstract



## Research highlights:

- Carbide-derived carbon (CDC) materials are doped with nitrogen and transition metals
- The doped CDC materials have high specific surface area and enhanced microporosity
- M-N-CDC catalysts show excellent activity towards ORR in RDE and alkaline DMFC
- Fe-N-CDC cathode shows better fuel cell performance than commercial Pt/C catalyst

Download English Version:

<https://daneshyari.com/en/article/4755978>

Download Persian Version:

<https://daneshyari.com/article/4755978>

[Daneshyari.com](https://daneshyari.com)