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NOMENCLATURE

Abbreviations	Meaning
ANOVA	Analysis of variance
BBD	Box behnken design
CCME	Catalyst coated membrane electrode
CNT	Carbon nanotube
CV	Cyclic voltammetry
3D	Three-dimensional
DF	Degree of freedom
DMF	Dimethylformamide
DMSO	Dimethyl sulfoxide
EDX	Energy dispersive X-ray analysis
EG	Ethylene glycol
EIS	Electrochemical impedance spectroscopy
FCA	Flow channel area
GDL	Gas Diffusion Layer
HSA	High surface area
MPD	Maximum power density
MWCNT	Multi-walled carbon nanotube
NC	N-micro/mesoporous carbon supported
OCV	Open circuit voltage
ORR	Oxygen reduction reaction
PEMFC	Proton exchange membrane fuel cell
RSM	Response surface methodology
SEM	Scanning electron microscopy
TEM	Transmission electron microscopy
W	Water
XRD	X-ray diffraction

Greek Symbols	**Meaning**
α_o	Lattice parameter of pure carbon supported Pt
β	Width of the peak (in radians)
β_o	Linear parameter
β_{ii}	Quadratic parameter
β_{ij}	Interaction parameter
λ	Scherrer constant
θ	Theta (in degree)
η_{FC}	Total efficiency
η_F	Faraday efficiency
η_H	Heating value efficiency
η_r	Thermodynamics efficiency
η_U	Fuel utilization efficiency
η_V	Electrochemical efficiency

Alphabetic symbols	**Meaning**
A	Cathode loading
a	Lattice parameter
a_o	Lattice parameter of pure carbon supported Pt
B	Cell temperature
C	Hydrogen flow rate
C_{AB}	Acetylene black
dc	Average crystallite size
d_{hkl}	Interplanar distance between two planes of miller indices (hkl)
k	Number of factors in RSM study
N	Total number of experiments in RSM study
p-value	Probability value
R^2	Coefficient of determination
X_i and X_j	Independent variables for the studied factor
Y	Predicted response (maximum power density)