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(57) Abstract: The present disclosure provides for a composite catalyst comprising a first catalytic material incorporated with a second catalytic material, wherein the first catalytic material comprises carbon doped with (i) nitrogen and (ii) at least one non-precious transition metal, and wherein the second catalytic material comprises a carbon-based supporting material incorporated with platinum nanoparticles. The present disclosure also provides for a method of producing the composite catalyst, wherein the method may comprise providing a mixture comprising the first catalytic material and the second catalytic material, and subjecting the mixture to a size reduction step. The first catalytic material and a method of producing the first catalytic material are disclosed herein.



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