One step fabrication of Boron and Nitrogen co-doped reduced graphene oxide and its use in oxygen reduction reaction catalyst

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Boron and nitrogen co-doped reduced graphene oxide (RGO) was fabricated in one step by using boric acid and nitric acid mixture. XPS results confirmed the reduction of functional groups and incorporation of boron and nitrogen in the GO. We fabricated RGO using conventional solvothermal reduction, and N-doped RGO, B-doped RGO, and B/N co-doped RGO using boric/nitric acid solution. Among them, the B/N co-doped RGO exhibited highest oxygen reduction activity. In addition, it showed better methanol tolerance and long-term stability than those of commercial Pt/C catalyst.