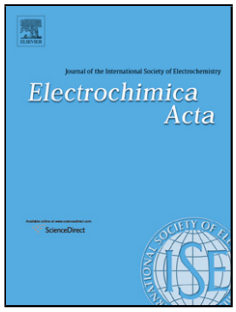

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Thermal oxidation induced high electrochemical activity of boron-doped nanocrystalline diamond electrodes

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Abstract Thermal oxidation treatment was executed on boron-doped nano-crystalline diamond (B-NCD) films to change both the microstructure and the terminal groups of grains and grain boundaries. Their contributions to the electrochemical activity and electrical properties were investigated. The grain boundaries become narrowing, with ordered graphite phase firstly, and then they become disordered for long time oxidized treatment. This causes