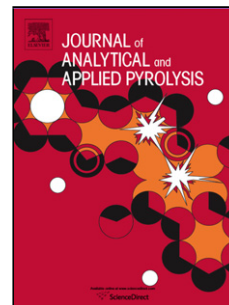


## Accepted Manuscript

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## **Ru incorporation Enhanced electrochemical performance of spray deposited Mn: Co<sub>3</sub>O<sub>4</sub> nano-composite: Electrochemical approach**

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### **Highlights**

- Ru-incorporated Mn-Co<sub>3</sub>O<sub>4</sub> electrode is possible via chemical spray pyrolysis.
- Crystalline with granular crack free mixed nano-structures.
- Electrode shows mixed capacitive behaviour.
- Mn-Co<sub>3</sub>O<sub>4</sub> electrode with 20 % Ru incorporation exhibited as high as 1440 F/g specific capacitance at 1mV/s, nearly 3000 cycles chemical stability in 1 M KOH electrolyte at 100 scan.
- Nyquist plot exhibits 1.12 Ω internal resistance.

### **Abstract**

Paper highlights, enhanced electrochemical performance of spray pyrolysed ruthenium (Ru) incorporated manganese-cobalt oxide (Mn: Co<sub>3</sub>O<sub>4</sub>) thin films, prepared via non aqueous route on to stainless-steel at 623±2 K. In the 1<sup>st</sup> phase of the work, prepared samples were characterized by XRD, SEM, TEM, SAED, EDAX and XPS and in the 2<sup>nd</sup> phase, samples were analyzed electrochemical characterizations. CV study shows mixed capacitive behaviour for all electrodes.

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