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Hydrothermal synthesis of MnO₂ thin film for supercapacitor application

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MnO₂ thin films were directly grown on stainless steel mesh via a facile hydrothermal method. The structural properties revealed the formation of delta MnO₂. The capacitive performance of the as-obtained MnO₂ electrode was evaluated by cyclic voltammetry (CV) and galvanostatic charge–discharge measurements. The synthesized electrode showed a high specific capacitance of 321 F g⁻¹ at 5 A g⁻¹. The excellent electrochemical performance identifies the MnO₂ as a promising electrode material for next-generation energy storage devices.

Topics

[Crystallography](#), [Energy storage](#), [Thin films](#), [Transition metal oxides](#), [Supercapacitors](#), [Cyclic voltammetry](#), [Chemical synthesis](#)

REFERENCES

1. B. Zhu, S. Tang, S. Vongehr, H. Xie and X. Meng, *ACS Applied Materials & Interfaces* 8 (7), 4762–4770 (2016).
<https://doi.org/10.1021/acsami.5b11367>
[Google Scholar](#) [Crossref](#)
2. B. Xu, L. Yu, M. Sun, F. Ye, Y. H. Zhong, G. Cheng, H. Wang and Y. L. Mai, *Rsc Adv* 7 (24), 14910–14916 (2017).
<https://doi.org/10.1039/C7RA00787F>
[Google Scholar](#) [Crossref](#)

3. W. Fu, X. Li, C. Zhao, Y. Liu, P. Zhang, J. Zhou, X. Pan and E. Xie, *Materials Letters* 149, 1–4 (2015).

<https://doi.org/10.1016/j.matlet.2015.02.092>

[Google Scholar](#) [Crossref](#)

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