Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supporting Information

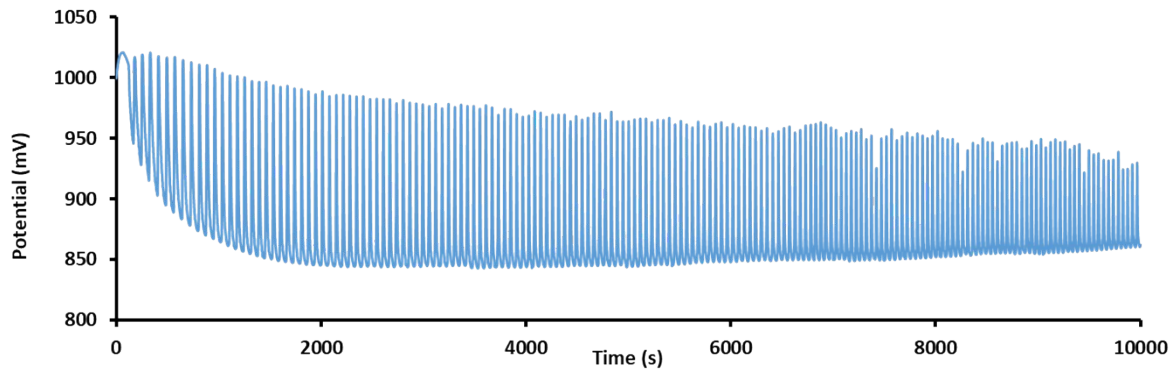

Figure S1. Oscillation of pure B-Z reaction.

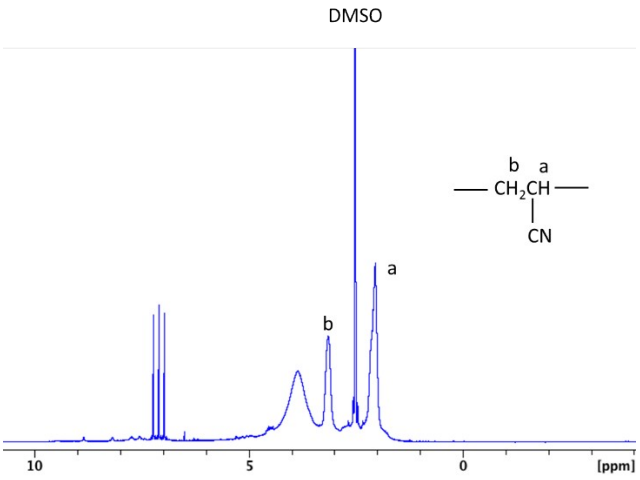

Figure S2. H^1 NMR of polyacrylonitrile.

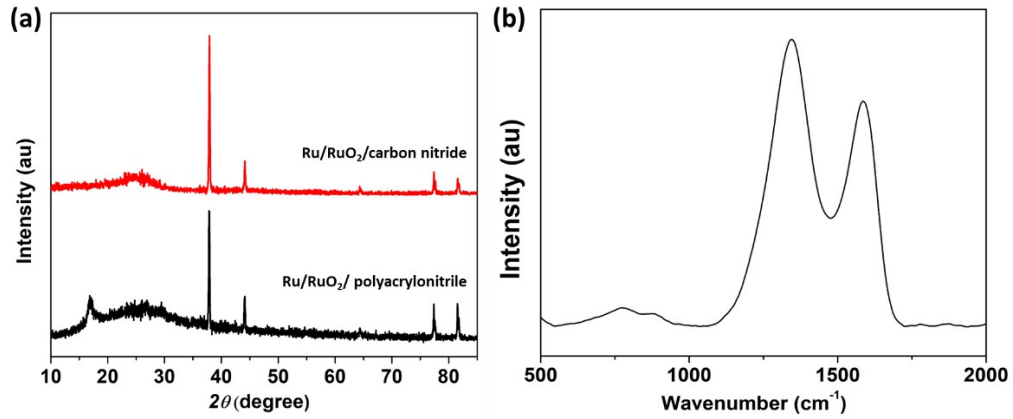

Figure S3. XRD and Raman spectra of carbon nitride.

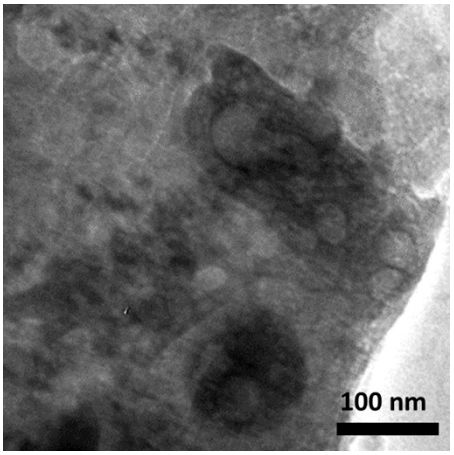

Figure S4. TEM Images of polyacrylonitrile polymer.

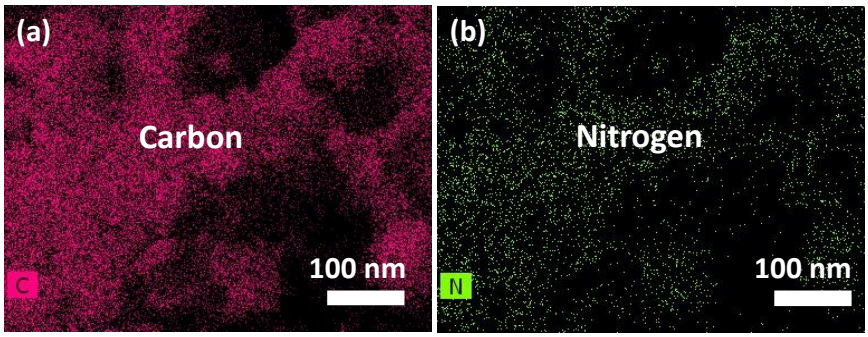

Figure S5. SEM EDX of carbon nitride.

Table S1: Supercapacitor performance of RuO_2 based materials

Electrode materials	Synthesis method	morphology	Electrolyte	Specific capacitance	Ref.
RuO_2@Ru	Hydrothermal	Core-shell nanostructure	1 mol/L H_2SO_4	318.5 F/g at 0.5 A/g	[1]
RuO_2/C	Hydrothermal and carbonization	Irregular particles	1M H_2SO_4	326.95 F/g at 0.1 A/g	[2]
RuO_2/C	Hydrothermal	Nanoparticles	2 M H_2SO_4	155 F/g at 5 mV/s	[3]
RuO_2/TiO_2	Hydrothermal	Nanotube	1 M KOH	46 F/g at 15 mA/cm2	[4]
MoO_3-RuO_2/Ti	Annealing	Irregular particles	0.5 M H_2SO_4	639 F/g at 1 A/g	[5]
rGO/RuO_2	Ultrasonic bath	Nanoparticles	3 M H_2SO_4	328.6 F g^{-1} at 0.5 A/g	[6]
GO/RuO_2/MWCNT	Hummers	Nanoparticles and nanosheets	3 M H_2SO_4	514.9 F/g at 0.5 A/g	[7]
RuO_2@Co_3O_4/N-GO	Hydrothermal	Nanoparticles and nanosheets	2 M KOH	472 F/g at 0.5 A/g	[8]
C_3N_4/Ru/RuO_2	Belousov-Zhabotinsky (B-Z) reaction	Irregular particles	3 M KOH	763 F/g at 0.3 A/g	Our work

References

1. L. Zhao, F. Di, X. Wang, S. Farid, S. Ren, Constructing a hollow core-shell structure of RuO_2 wrapped by hierarchical porous carbon shell with Ru NPs loading for supercapacitor, *Chinese J. Chem. Eng.* 55 (2023) 93–100.
2. W. Zhang, S. Yu, H. Hu, Y. Fei, L. Chen, T. Zhang, Binder-free self-supporting electrodes formed by intercalation of RuO_2 on wood-derived carbon for supercapacitor, *Appl. Surf. Sci.* (2023) 158285.
3. C.M. Chuang, C.W. Huang, H. Teng, J.M. Ting, Hydrothermally synthesized RuO 2/Carbon nanofibers composites for use in high-rate supercapacitor electrodes, *Compos. Sci. Technol.* 72 (2012) 1524–1529
4. Y.G. Wang, Z.D. Wang, Y.Y. Xia, An asymmetric supercapacitor using RuO_2/TiO_2 nanotube composite and activated carbon electrodes, *Electrochim. Acta.* 50 (2005) 5641–5646.

5. P. Ge, H. Tan, Y. Shao, R. Zhang, L. Xu, J. Zhuang, Y. Chen, X. Xia, Z. Liu, H. Li, K. Chen, Electrochemical performance of MoO_3-RuO_2/Ti in H_2SO_4 electrolyte as anodes for asymmetric supercapacitors, *Electrochim. Acta.* 429 (2022) 125398.
6. S. Korkmaz, A. Kariper, O. Karaman, C. Karaman, The production of rGO/ RuO_2 aerogel supercapacitor and analysis of its electrochemical performances, *Ceram. Int.* 47 (2021) 34514–34520.
7. F. Karimi, S. Korkmaz, C. Karaman, O. Karaman, Afşin Kariper, Engineering of GO/MWCNT/RuO_2 ternary aerogel for high-performance supercapacitor, *Fuel*. 329 (2022).
8. S. Ramesh, K. Karuppasamy, A. Sivasamy, H.S. Kim, H.M. Yadav, H.S. Kim, Core shell nanostructured of Co_3O_4@RuO_2 assembled on nitrogen-doped graphene sheets electrode for an efficient supercapacitor application, *J. Alloys Compd*. 877 (2021) 160297.