

# Multifunctional carbon-based and related nanostructured materials.

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Carbon-based nanostructured materials such as *fullerenes*, *azafullerenes*, *nanotubes*, *nanohorns*, *diamond*, *C-dots* and *graphene* as well as the related 2D *metal dichalcogenides* attract the focus of considerable research interest. Herein, recent results from my laboratory on the chemical functionalization of those materials toward the preparation of hybrids targeting diverse applications will be presented.[1-12] All new hybrid materials are comprehensively characterized, while their photophysical, electrochemical, catalytic and physicochemical properties are probed with complementary spectroscopic, thermal and microscopy techniques.

## References

- [1] Karousis, Suarez, Ewels, and Tagmatarchis, *Chem. Rev.* **116**, 4850 (2016).
- [2] Stergiou, Liu, Suenaga, Yudasaka, Xu, Kaneko, and Tagmatarchis, *Angew. Chem. Int. Ed.* **55**, 10468 (2016).
- [3] Rotas, and Tagmatarchis, *Chem. Eur. J.* **22**, 1206 (2016).
- [4] Stergiou, and Tagmatarchis, *ACS Appl. Mater. Interf.* **8**, 21576 (2016).
- [5] Skaltsas, Stergiou, Chronopoulos, Zhao, Shinohara, and Tagmatarchis, *J. Phys. Chem. C* **120**, 8550 (2016).
- [6] Pagona, Stergiou, Gobeze, Rotas, D'Souza, and Tagmatarchis, *Phys. Chem. Chem. Phys.* **18**, 811 (2016).
- [7] Pagona, Bittencourt, Arenal, and Tagmatarchis, *Chem. Commun.* **51**, 12950 (2015).
- [8] Chronopoulos, Kokotos, Karousis, Kokotos, and Tagmatarchis, *Nanoscale* **7**, 2750 (2015).
- [9] Stergiou, Gobeze, Petsalakis, Zhao, Shinohara, D'Souza, and Tagmatarchis, *Nanoscale* **7**, 15840 (2015).
- [10] Skaltsas, Pispas, and Tagmatarchis, *Mater. Res. Express* **2**, 115005 (2015).
- [11] Economopoulos, and Tagmatarchis, *J. Phys. Chem. C* **119**, 8046 (2015).
- [12] Shinohara and Tagmatarchis, *Endohedral metallofullerenes: Fullerenes with metal inside*, John Wiley & Sons Ltd, West Sussex, PO19 8SQ, United Kingdom, 2015, ISBN: 9781119942726.

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