Carbon Reports Special Issue: Chemical functionalization of carbon materials

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Carbon materials have excellent properties and exhibit various physical properties simply by changing their dimensions and shapes. Functionalization through chemical modification is being investigated to enhance the attractive feature of carbon materials. Functions that cannot be achieved with carbon alone, such as biocompatibility and dispersibility in solvents and resins, are imparted by bonding desired functional groups and molecules, element doping, or oxidation toward carbon materials. The definition of chemical modification is broad; it includes not only covalent bonds but also non-covalent bonds (van der Waals interactions, π-π interactions, hydrophobic interactions, hydrogen bonds, etc.). On-target introduction of functional groups and molecules into carbon will significantly expand the performance and applications of carbon materials. However, many carbon materials have ambiguous structures, and it is difficult to achieve specific chemical modifications. Therefore, it is not easy to control the structure of carbon materials at the atomic level, like small molecules and pharmaceuticals. Until now, research and development have been carried out to withdraw the potential of carbon, while maintaining certain ambiguity, hypotheses, and presumptions. In contrast, thanks to the recent development of analysis techniques, it has become possible to elucidate the structure at the atomic level. Based on the backgrounds mentioned above, a special issue focusing on synthesis methods, structural analysis, and evaluation of properties of carbon materials based on chemical modification has been launched. Examples of research topics for this call are shown below.

(1) Research on new chemical modification methods for carbon materials
(2) Structural analysis of chemically modified carbon materials
(3) Improvement of physical properties by chemical modification of carbon materials

Even if it does not fully correspond to the above examples, we welcome submissions of related topics to the functionalization of carbon materials based on the chemical modification.

How to submit: Please prepare a manuscript in accordance with the “Author instruction”, and submit the manuscript file to **tanso-edit@bunken.co.jp** Please clearly describe in your email that you are submitting the manuscript to the special issue.

Type of manuscript: Any formats are acceptable: Research Paper, Short Paper, Integrated Paper, Account, Review, Technical Report, and Reference Data.

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Peer-review: The manuscript will be subjected to our advanced review process in which reviewers provide constructive comments to improve your manuscript, rather than rejecting your manuscript.

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