



## Modification of carbon by diazonium salts: control using a radical scavenger

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Résumé en anglais

Grafting of organic structures using the diazonium chemistry is a recognized method for obtaining functionalized surfaces.1 Various conducting materials as metals and carbon can be modified in aprotic or aqueous media, and provide covalently tethered layers. The efficiency of this grafting process rests upon the high reactivity of the aryl radicals produced at the electrode-solution interface. This reactivity leads to the generation of polyaryl layers via the radical attack of already grafted aryl species on the surface. As a consequence, the method routinely provides disordered organic films having a thickness varying from one to fifty nanometers. The lack of control, in terms of thickness and organization, represents the major drawback of this elegant and versatile technique.

A simple strategy to avoid the formation of polyaryl layer during the functionalization of carbon surface by diazonium reduction is presented.2 The approach proposes to directly act on the polymerization mechanism by the use of a radical scavenger (DPPH = 2,2-diphenyl-1-picrylhydrazyl). The kinetic gap between the surface coupling and the multilayer formation is exploited to prevent the growth of the layer without interfering with the grafting.

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### Liens

[1] <http://okina.univ-angers.fr/t.breton/publications>

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