Special Issue

Active Screen Plasma Treatment

Message from the Guest Editor

Conventional direct current plasma nitriding (DCPN) has some limitations and disadvantages. Thus, some new methods were presented to avoid the direct formation of plasma on the surface and its consequent problems. One of the methods is active screen plasma nitriding (ASPN) or cathodic cage plasma nitriding (CCPN). Many researchers have reported on factors that are critical to nitriding, including the geometry of the active screen or cathodic cage, the distance between the screen and the component, screen material, furnace size, the value of bias power, and the sample position. Various materials such as steels, titanium alloys, aluminum alloys, copper alloys, high-entropy alloys, polymers, and carbon fibers have been nitrided by ASPN or CCPN. Different materials such as silver, copper, titanium, chromium, and carbon have also been applied as an active screen. This Special Issue will collect reviews and articles related to active screen plasma treatments such as ASPN or CCPN as well as active screen plasma carburizing (ASPC) or cathodic cage plasma carburizing (CCPC).

Guest Editor

Prof. Dr. Akio NISHIMOTO

Department of Chemistry and Materials Engineering, Kansai University, Osaka, Japan

Deadline for manuscript submissions

closed (28 February 2022)

Metals

an Open Access Journal by MDPI

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Metals
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
metals@mdpi.com

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Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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