SEMINAR ANNOUNCEMENT

"Optimization of cathodic cage plasma nitriding (CCPN) system"

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The cathodic cage plasma nitriding (CCPN) is a promising surface modification process to enhance the mechanical and corrosion behavior of various alloys. This CCPN configuration in particular is preferred over conventional plasma nitriding (CPN) due to the complete elimination of edge effect, as plasma is not in direct contact with the samples. It is usually driven using a pulsed D.C. power supply, due to several advantages such as improved control over temperature, nitrided layer phase composition and active species generation. For the effective utilization of CCPN system in the industry, it is necessary to enhance the nitriding efficiency as well as reduce power consumption.

In this work, the pulse power supply parameters, the cathodic cage diameter, and methane addition has been investigated to improve and optimize the process. For characterization of the nitrided samples, Vickers micro-hardness tester, scanning electron microscope, potentiodynamic polarization method and X-ray diffraction are used.