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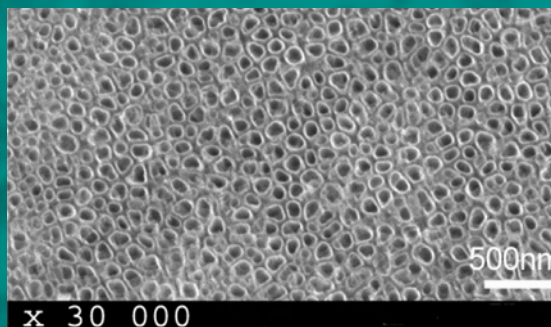
Professor

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Editor-in-Chief of the AMSE
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Dear Readers!

The next issue of Archives of Materials Science and Engineering is handed over to P.T. Readers. We publish in it as usual a few scientific papers. One of them, characterised in details below is recommended to a special attention of P.T. Readers. This time its subject matter deals with the effect of fluorides on bioactivity of titania nanotubes in simulated body fluid solution. As usual I encourage P.T. Authors to publish their works in successive issues of the journal, wishing the interesting reading of those published in the given issue.



The paper entitled "Effect of fluorides on bioactivity of titania nanotubes in SBF solution – by EIS studies" by E. Krasicka-Cydzik, K. Białas-Heltowski, I. Głazowska, T. Klekiel and A. Kaczmarek on a page 33 informs about the influence of fluorides concentration in anodizing electrolyte on deposition of calcium phosphates Ca-O-P on titania nanotubes immersed in simulated body fluid (SBF). The electrochemical impedance spectroscopy (EIS) was used to monitor the process of deposition of calcium phosphates on titanium foils covered with titania nanotubes formed by anodizing in 1 M H₃PO₄ with various amounts of fluorides ranging from 0.2 wt% to 0.4 wt%. The changes in impedance characteristics combined with results of SEM and EDS analyses were used to evaluate the bioactivity of nanotubes in SBF and find out the relation between the morphology of deposits and the concentration of fluorides in the anodizing electrolyte. The obtained results confirmed that titania nanotubes strongly favour the deposition of calcium phosphates (HAp) during the first 24 hours. However, the behaviour of titania nanotubes formed in the electrolytes of various fluoride content differ afterwards when immersed longer in SBF solution. Particularly, contrary to other samples, the amount of deposits on nanotubes formed in 1 M H₃PO₄+0.30% wt. HF decreases significantly about 72 hours after immersing and these observations are recorded by both the SEM/EDS examination and XPS results. The corresponding changes in impedance parameters are noticed. Bioactivity is highly desirable property of implant materials. The phenomena observed during immersion in SBF solution by the Electrochemical Impedance Spectroscopy are related to the amount of fluorine in titania nanotubes. The explanation of this behaviour and its consequence to bioactivity is proposed. The development of the method to cover titanium implant materials with nanoporous anodic layer, enriched in phosphates and fluorides – both ions highly supporting bioactivity, enables new applications in implantology and biosensing.