

Abstract Submitted  
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**Metal ion implantation and deposition by immersion in synchronous enhanced RF –driven plasma**<sup>1</sup> CONSTANTIN DIPLASU, AGAVNI SURMEIAN, ANDREEA GROZA, Institute of Atomic Physics-INFLPR, Romania, CRISTIAN TEODORESCU, Institute of Atomic Physics-INFM, Romania, MIHAI GANCIU, Institute of Atomic Physics-INFLPR, Romania — An improved ion source based on synchronous enhancement of RF-driven plasma by superimposed high voltage pulses is tested for metal ion implantation on non-metallic surfaces. The new method consists in applying supplementary very short positive high voltage pulsed discharges on a separate electrode synchronized with negative pulses applied on the target for ion implantation. By this method RF plasma density was increased with an order of magnitude shortly before applying accelerating pulses on the target. The advantages of this new method were revealed by nitrogen implanted tests on copper and brass samples [C. Diplasu, A. Surmeian, A. Groza, M. Ganciu, Surf. & Coatings Techn. 203 (2009) 2858]. In this paper we compared the results obtained using the new proposed method to the metal ion implantation by immersion in classical RF plasma. It was demonstrated that using the improved ion source, the metal layer is more compact and less contaminated and a larger amount of implanted ions can be found in the non-metallic substrate.

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