Growth of films by high power impulse magnetron sputtering: a review.

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In magnetron sputtering techniques, variation of the deposition parameters allows for control of the energy transferred to the film forming species enabling tailoring of the films properties. Among the various ways used to provide energy to the growing film, bombardment by ionized species is widely employed. High power impulse magnetron sputtering (HiPIMS) is a technique in which high ion fluxes are made available at the growing film. The magnitude and the composition of these fluxes can be controlled by changing the process parameters, e.g. the peak target current, the pressure, the deposition angle, and the magnetic field strength. In this contribution we present a brief review on the effect of the energetic bombardment during HiPIMS on the growth and the properties of elemental and compound films.