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Multiple frequency capacitive plasmas as a tool to optimize PVD processes STEFAN BIENHOLZ, EGMONT SEMMLER, PETER AWAKOWICZ, Ruhr University Bochum / AEPT — Capacitively coupled plasmas are widely used in PVD processes over several years. Nowadays mainly DC-Magnetron sputter coaters are commonly used, which do not allow a separate control of ion flux and ion energy distribution at the target. A possibility to overcome this constriction consists of exciting the plasma at two different radio frequencies simultaneously. In this contribution we discuss the possibility of tuning electrical discharge quantities such as target voltage waveform and self bias voltage by using multiple excitation frequencies. The influence of the relative phase between one frequency and its second harmonic on these quantities is also investigated. The experiments show, that capacitively coupled multiple frequency discharges are a promising complement to existing PVD processes. The authors would like to acknowledge the funding provided by the "Deutsche Forschungsgemeinschaft" within the frame of the SFB-TR 87 and the "Ruhr University Bochum Research School."

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