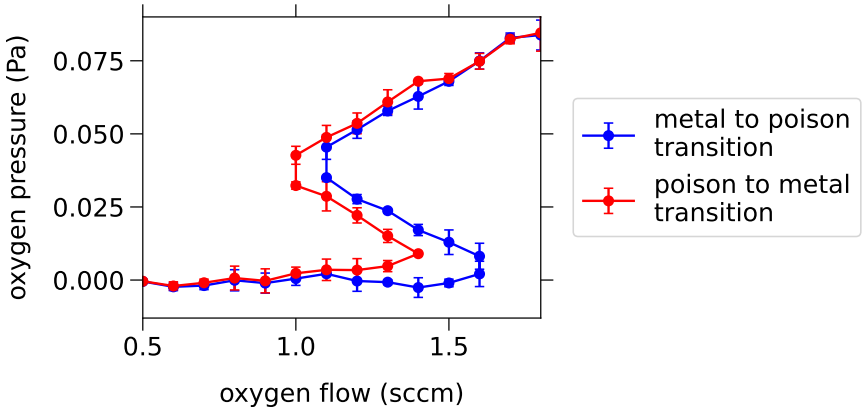

Figure 1: Double hysteresis measured at a constant power of 120 W. Data is taken from reference [5] and is obtained using IV-characteristics. The disadvantage of this technique is that multiple targets and much more data are required to obtain the curve. It is therefore difficult to investigate its evolution under variation of e.g. process parameters.

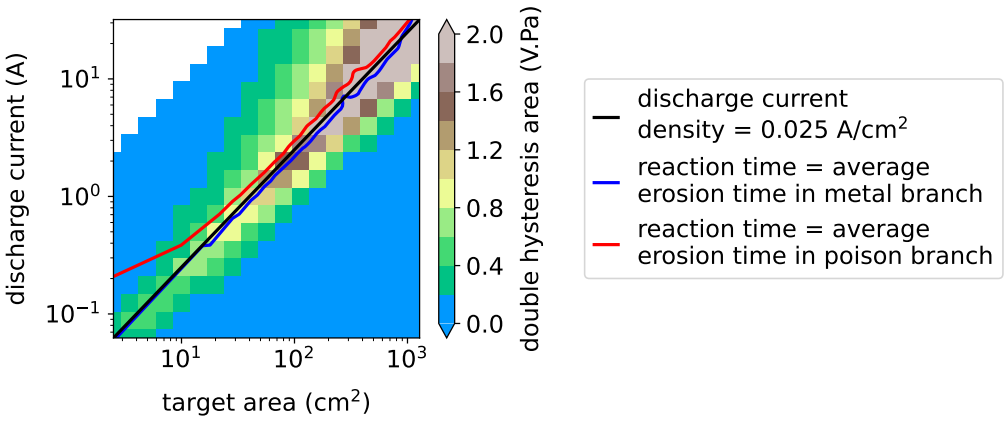

Figure 2: In our most recent work, it is shown that the existence of the double S-shaped process curve is related to a rate of implanted oxygen ions that is eroded from the target surface before having reacted with the target metal to form compound. Based on this understanding, it is possible to predict e.g. a discharge current density for which the double hysteresis behavior is maximal. Data and more details are found in reference [2].

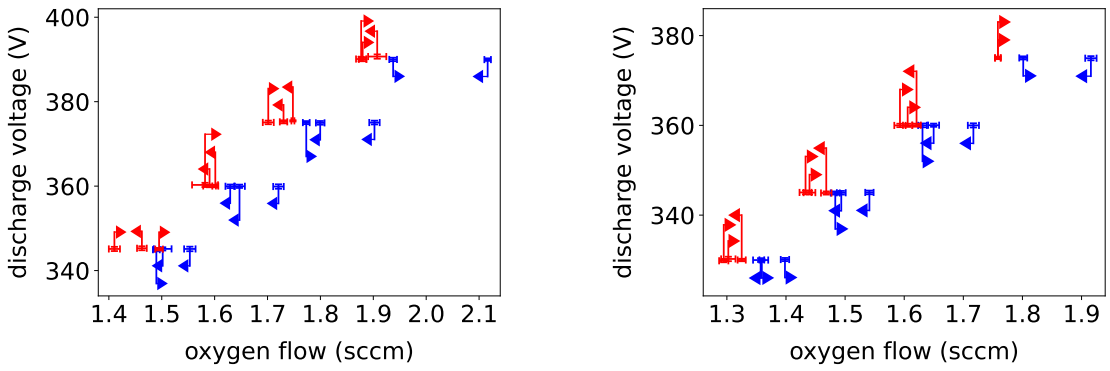

Figure 3: First measurements indicating a distinction between the 2 S-shaped curves during feedback control. Left: first the poison to metal transition is sampled. Right: first the metal to poison transition is sampled. The error bars and arrows indicate errors due to instabilities and relaxation of the sputtering system. The measurements were refined and extended to accurately sample double hysteresis curves for different process parameters.

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