

Figure 1: Double hysteresis measured at a constant power of 120 W. Data is taken from reference [2] and is obtained using IV-characteristics. We will present a direct proof of double hysteresis during feedback control instead.

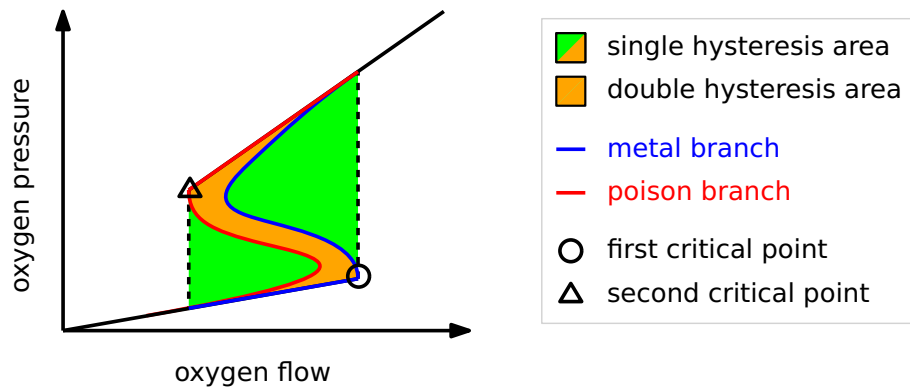


Figure 2: Measures used in the high-throughput analysis to quantify hysteresis behavior. A detailed discussion about the measures is found in reference [4].

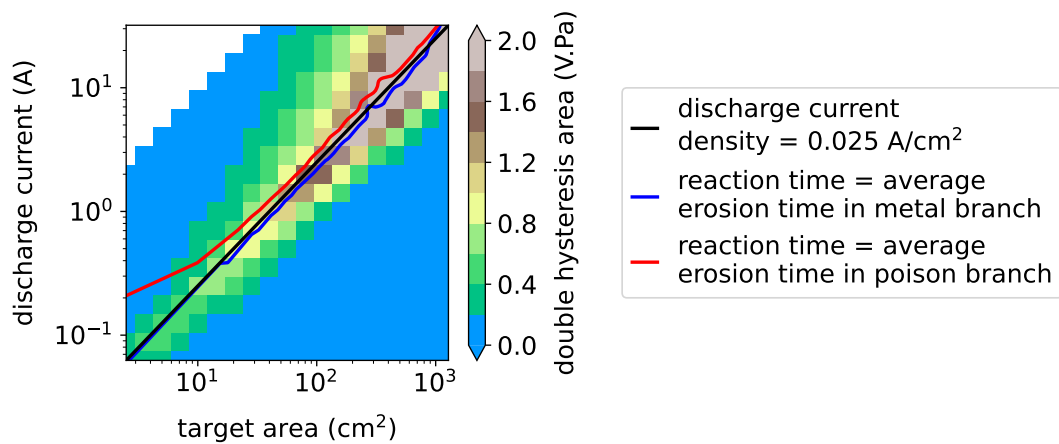


Figure 3: The high-throughput analysis shows that the difference between the two paths in feedback control is maximized at a certain constant discharge current density. This trend can be linked with the relation between the reaction and erosion of implanted oxygen ions. Data is taken from reference [4].

References

- [1] W. D. Sproul et al. Control of reactive sputtering processes, 491(1):1-17 (2005).
- [2] R. Schelfhout et al. The existence of a double S-shaped process curve during reactive magnetron sputtering, 109(11):111605 (2016).
- [3] K. Strijckmans et al. Tutorial: Hysteresis during the reactive magnetron sputtering process, 124(24):241101 (2018).
- [4] J. V. Bever et al. A computational study of the double hysteresis phenomenon during reactive sputtering, 55(35):355302 (2022).
- [5] J. V. Bever et al. Influence of chemisorption on the double hysteresis phenomenon during reactive sputtering, under review (2022).
- [6] R. Schelfhout et al. Anomalous effects in the aluminum oxide sputtering yield, 51(15):155202 (2018).