
Electric field strength spectroscopy in dielectric barrier discharges

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0 Abstract

1 Introduction

1.1 Dielectric barrier discharges

1.2 Temporal development of the electric field strength

2 Experimentel set up

2.1 Discharge configurations

2.2 Optical emission spectroscopy

3 Results

3.1 Integrated spectrum

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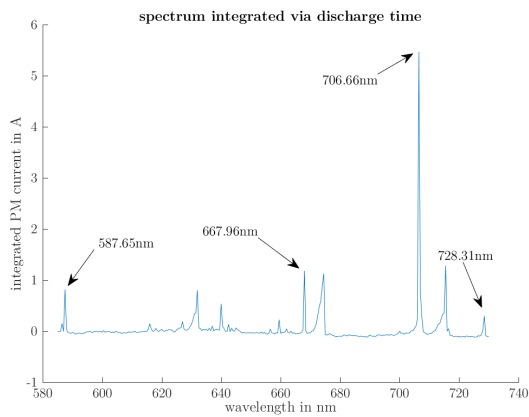


Figure 1: Integrated photomultiplier current via discharge time. Indicated are the majoring peaks, which will be target of our investigation. The spectrum reaches from 580 nm to 730 nm.

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3.2 Spatial temporal resolved intensities

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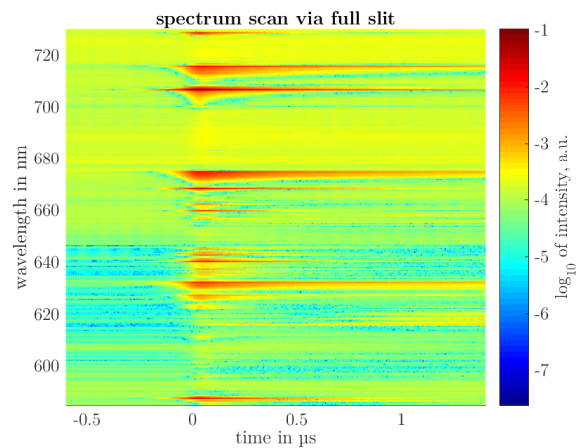


Figure 2: Photomultiplier current via discharge time and wavelength. The current derives from the intensity of the full exit slit of the discharge chamber.

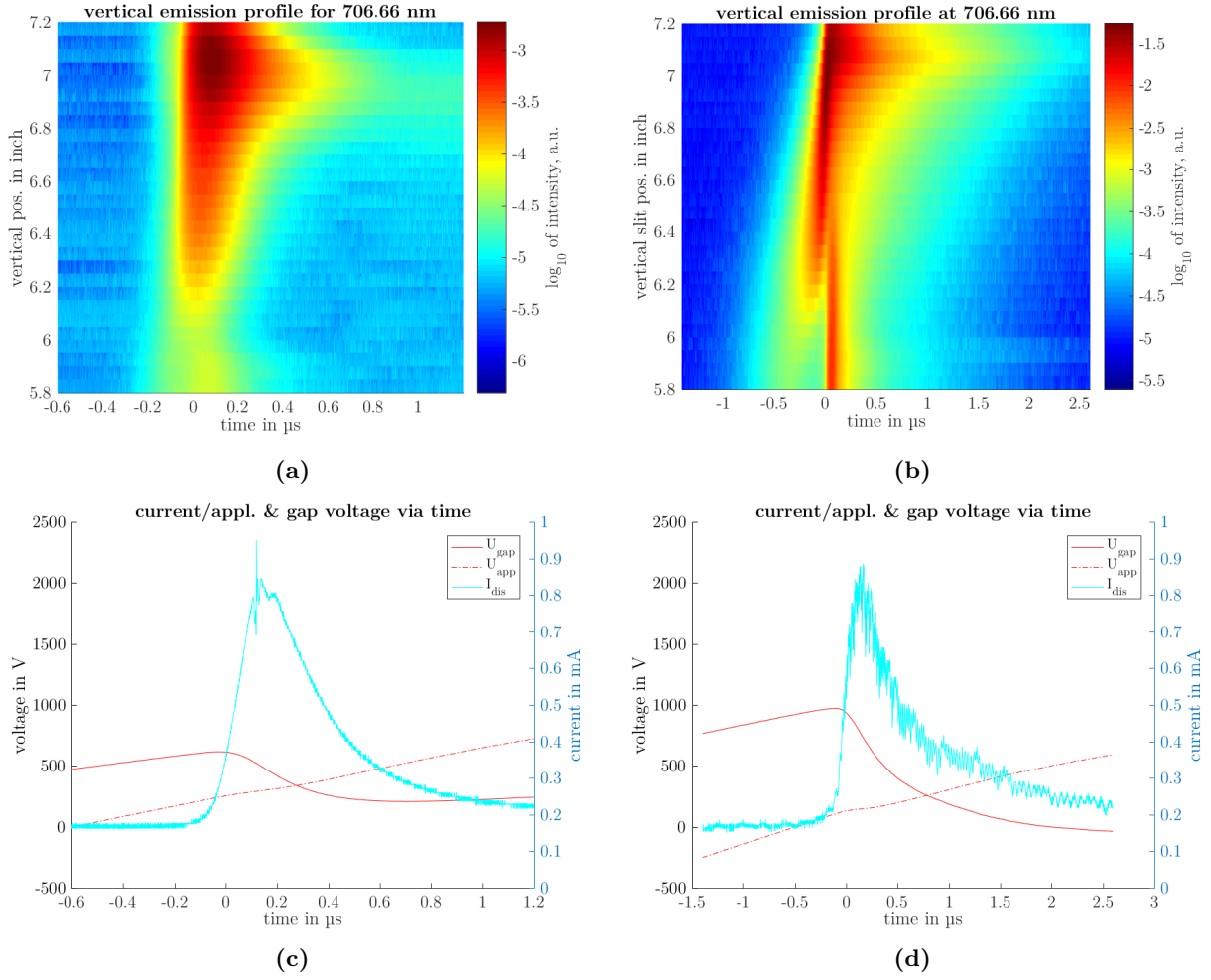


Figure 3: (a): Spatial temporal resolved line emission from 706 66 nm at sine wave discharge duty form. (b): Profile at square wave duty form. (c): Discharge current, gap and applied voltage via time. The graph of the applied voltage resembles a temporal highly resolved sine wave of 5 kHz. (d): Discharge characteristics for a square wave.

3.3 Line ratios

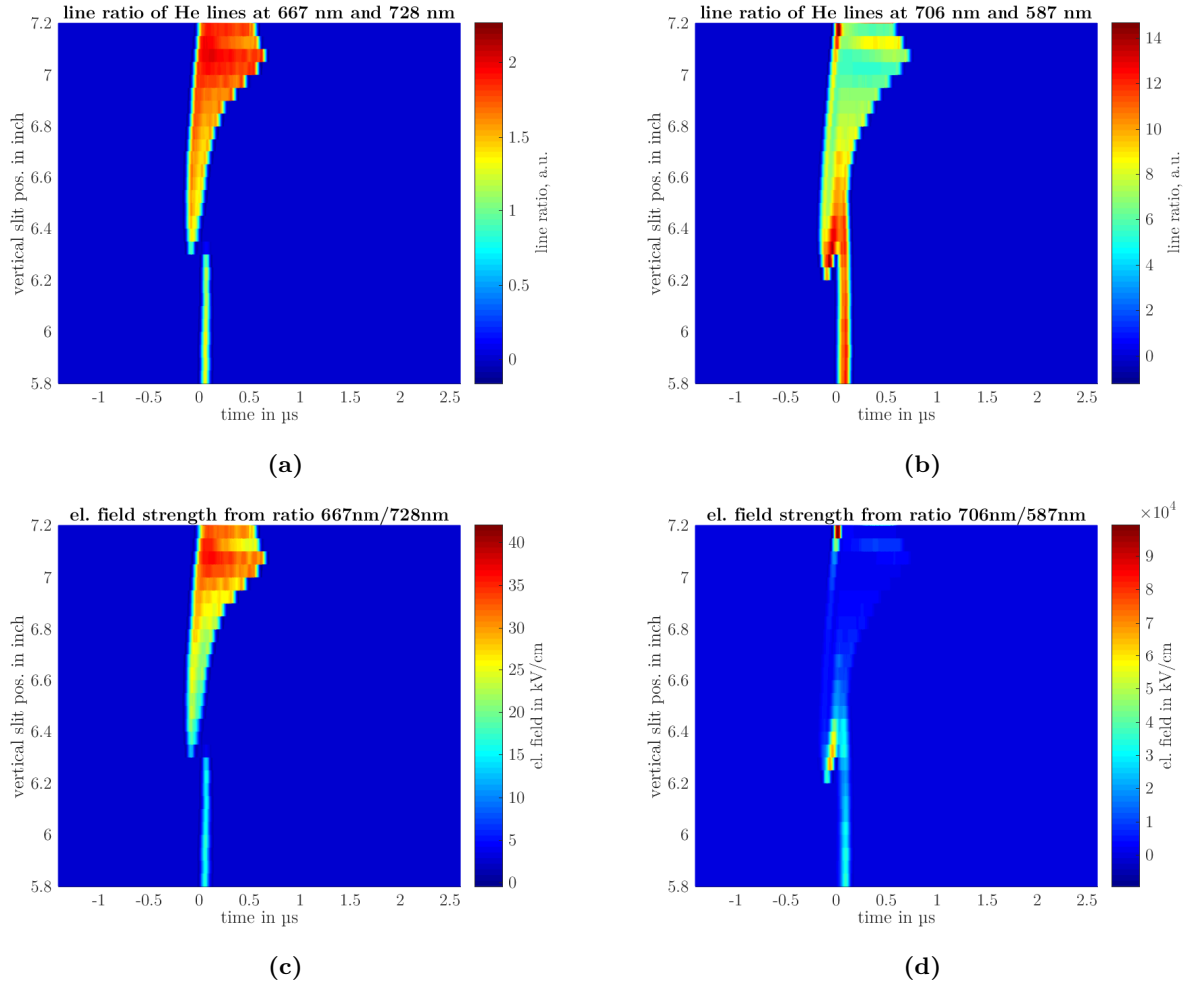


Figure 4: (a): Line ratio from the division of the intensity values of the emission at 667 96 nm and 728 31 nm. (b): Line ratio of 706 66 nm/587 65 nm. (c): (d):

3.4 Stark spectroscopy

4 Conclusion

5 Acknowledgments

5.1 References

References

6 Appendix