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Tobias Hangleiter*

May 1, 2025

* A LaTeX lover/hater

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The harmony of the world is made manifest in Form and Number, and the heart and soul and all the poetry of Natural Philosophy are embodied in the concept of mathematical beauty.

– D’Arcy Wentworth Thompson

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NOISE

6.1 Electron temperature

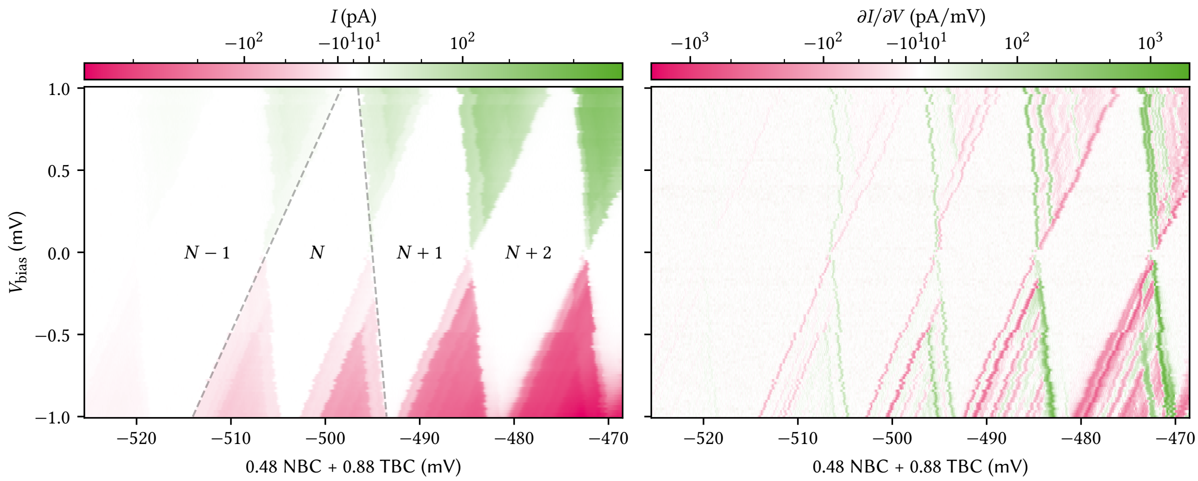

Figure 6.1

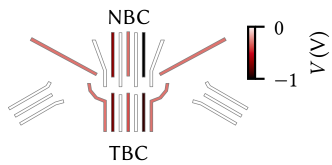

Figure 6.2

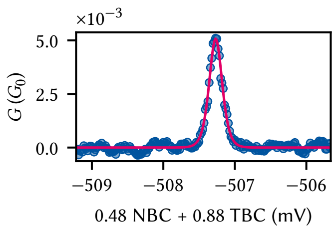

Figure 6.3

7 Characterization and improvements of the optical path

NOISE

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NOISE

8.1 Accelerometric vibration spectroscopy

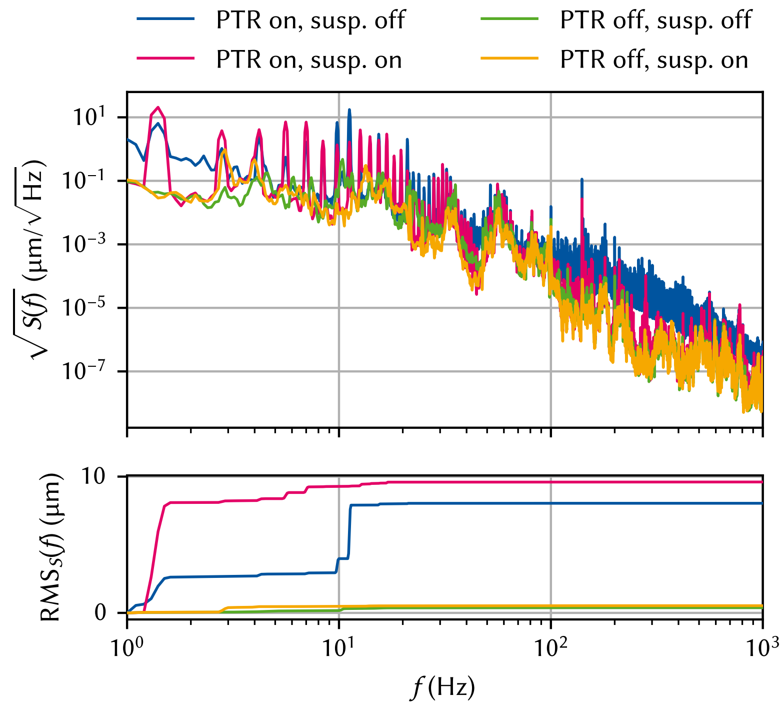


Figure 8.1

8.2 Optical vibration spectroscopy

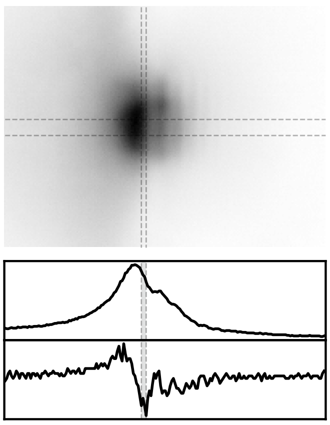


Figure 8.2

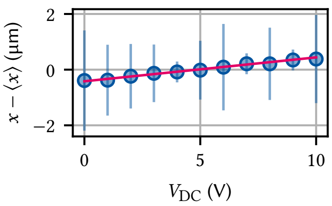
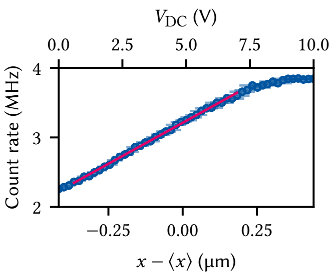


Figure 8.3



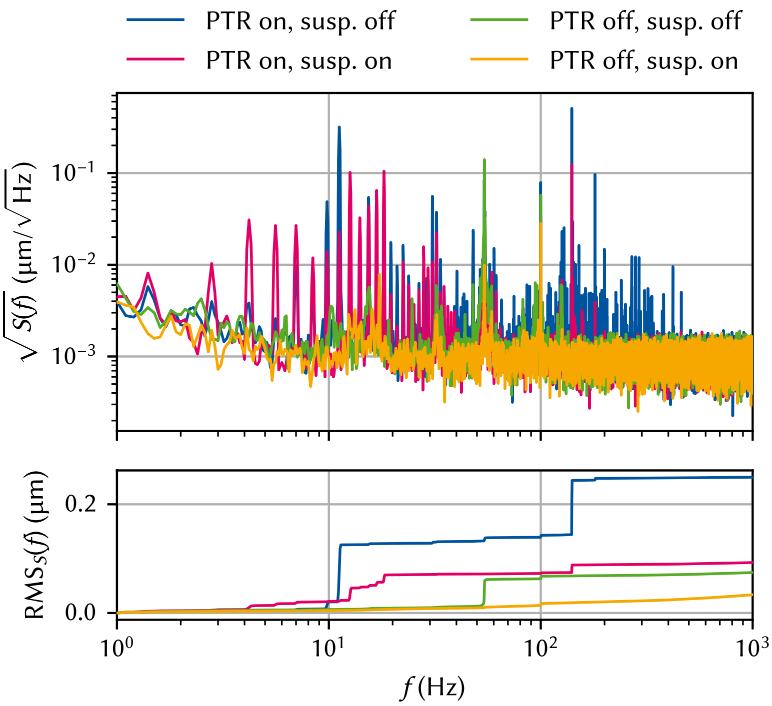

PTR on, susp. off
PTR on, susp. on
PTR off, susp. off
PTR off, susp. on
$\sqrt{S(f)}$ (μm/$\sqrt{\mathrm{Hz}}$)
10^{-1}
10^{-2}
10^{-3}
$\mathrm{RMS}_S(f)$ (μm)
0.2
0.0
10^0
10^1
10^2
10^3
f (Hz)

Figure 8.5

9 Conclusion & outlook

NOISE

Part III

Optical Measurements of Electrostatic Exciton Traps in Semiconductor Membranes

Part IV

A Filter-Function Formalism For Unital Quantum Operations

Appendix

Special Terms

F

FF filter function. vii

M

MC Monte Carlo. vii

P

PSD power spectral density. v

Q

QFT quantum Fourier transform. viii

S

SRB standard randomized benchmarking. viii