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Coupling light to periodic nanostructures

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Curriculum Vitæ

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Master Thesis: Nonlinear dynamics of the inductive SQUID: prospects for qubit measurement. Advisor: Prof.dr.ir. J. E. Mooij

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List of publications

Journal articles

- A. Lupaşcu, E. F. C. Driessen, L. Roschier, C. J. P. M. Harmans, and J. E. Mooij, *High-contrast dispersive readout of a superconducting flux qubit using a nonlinear resonator*, Physical Review Letters **96**, 127003 (2006).
- J. Eroms, L. C. van Schaarenburg, E. F. C. Driessen, J. H. Plantenberg, C. M. Huizinga, R. N. Schouten, A. H. Verbruggen, C. J. P. M. Harmans, and J. E. Mooij, *Low-frequency noise in Josephson junctions for superconducting qubits*, Applied Physics Letters **89**, 122516 (2006).
- E. F. C. Driessen, D. Stolwijk, and M. J. A. de Dood, *Asymmetry reversal in the reflection from a two-dimensional photonic crystal*, Optics Letters **32**, 3137–3139 (2007). (*Chapter 3 of this thesis*)
- M. J. A. de Dood, E. F. C. Driessen, D. Stolwijk, M. P. van Exter, *Observation of coupling between surface plasmons in index-matched hole arrays*, Physical Review B **77**, 115437 (2008). (*Chapter 7 of this thesis*)
- D. Stolwijk, E. F. C. Driessen, M. A. Verschuuren, G. W. 't Hooft, M. P. van Exter, and M. J. A. de Dood, *Enhanced coupling of plasmons in hole arrays with periodic dielectric antennas*, Optics Letters **33**, 363–365 (2008). (*Chapter 5 of this thesis*)
- E. F. C. Driessen and M. J. A. de Dood, *The Perfect Absorber*, Applied Physics Letters **94**, 171109 (2009). (*Chapter 9 of this thesis*). This

Letter was reviewed in *De Pers* of June 24, 2009, and (among other) on the websites of *Science Daily* and *Materials Research Society*.

- E. F. C. Driessen, F. R. Braakman, E. M. Reiger, S. N. Dorenbos, V. Zwiller, and M. J. A. de Dood, *Impedance model for the polarization dependence of NbN superconducting single photon detectors*, The European Physical Journal - Applied Physics 47, 10701 (2009). (*Chapter 8 of this thesis*)
- A. Lupaşcu, P. Bertet, E. F. C. Driessen, C. J. P. M. Harmans, and J. E. Mooij, *One- and two-photon spectroscopy of a flux qubit coupled to a microscopic defect*, submitted to Physical Review Letters, arXiv:0810.0590v1 [cond-mat.supr-con].

Conference proceedings

- M. J. A. de Dood, E. F. C. Driessen, D. Stolwijk, M. P. van Exter, M. A. Verschuuren, and G. W. 't Hooft, *Index matching of surface plasmons*, Proceedings of the SPIE **6987**, 698713 (2008). (*Chapter 6 of this thesis*)
- E. F. C. Driessen, P. O. M. Heemskerk, D. Stolwijk, E. W. J. M. van der Drift, and M. J. A. de Dood, *Asymmetry reversal and waveguide modes in photonic crystal slabs*, Proceedings of the SPIE **6989**, 69890G (2008). (*Chapter 2 of this thesis*)

Patent

- E. F. C. Driessen and M. J. A. de Dood, *Thin film radiation detector*, UK patent application no. 0900534.9, filed 14 January 2009 by Leiden University and FOM foundation. (*Based on Chapter 9 of this thesis*)

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