

# DR. IR. REINOUD LAVRIJSEN

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## LIST OF PUBLICATIONS, PRESENTATIONS, SUPERVISED STUDENTS (AS PER DEC. 2021)

### UNDER REVIEW

- i. [Picosecond Optomagnetic Tunnel Junctions](#)  
L. Wang, H. Cheng, P. Li, Y. Liu, Y.L.W. van Hees, R. Lavrijsen, X. Lin, K. Cao, B. Koopmans, W. Zhao  
*Under review at PNAS (2021)*
- ii. [Local control of magnetic interface effects in chiral Ir|Co|Pt multilayers using Ga<sup>+</sup> ion irradiation](#)  
M.C.H. de Jong, M.J. Meijer, J. Lucassen, J. van Liempt, H.J.M. Swagten, B. Koopmans, R. Lavrijsen  
*Under review at Physical Review B (2021)*

### PUBLICATIONS

#### FIRST-AUTHOR AND/OR LAST-AUTHOR

1. [Stabilizing chiral spin-structures via an alternating Dzyaloshinskii-Moriya interaction](#)  
J. Lucassen, M.J. Meijer, M.C.H. de Jong, R.A. Duine, H.J.M. Swagten, B. Koopmans, R. Lavrijsen  
*Physical Review B 102, 014451 (2020)*
2. [Deterministic single pulse all-optical magnetization writing facilitated by non-local transfer of spin angular momentum](#)  
Y.L.W. van Hees, P. van de Meughevel, B. Koopmans, R. Lavrijsen  
*Nature Communications 11, 3835 (2020)*
3. [Magnetic chirality controlled by the interlayer exchange interaction](#)  
M.J. Meijer, J. Lucassen, F. Kloodt-Twesten, R. Frompter, O. Kurnosikov, R.A. Duine, H.J.M. Swagten, B. Koopmans, R. Lavrijsen  
*Physical Review Letters 124, 207203 (2020)*
4. [Extraction of Dzyaloshinskii-Moriya interaction from propagating spin waves validated](#)  
J. Lucassen, C.F. Schippers, M.A. Verheijen, P. Fritsch, E.J. Geluk, B. Barcones, R.A. Duine, S. Wurmehl, H.J.M. Swagten, B. Koopmans, R. Lavrijsen  
*Physical Review B 101, 064432 (2020)*
5. [Tuning magnetic chirality by dipolar interactions](#)  
J. Lucassen, M.J. Meijer, F. Kloodt-Twesten, R. Frömter, O. Kurnosikov, R.A. Duine, H.J.M. Swagten, B. Koopmans, R. Lavrijsen  
*Physical Review Letters 123, 157201 (2019)*
6. [Creep of Chiral Domain Walls](#)  
D.M.F. Hartmann, R.A. Duine, M.J. Meijer, H.J.M. Swagten, R. Lavrijsen  
*Physical Review B 100, 094417 (2019)*
7. [A new twist for spin torques in antiferromagnets](#)  
R. Lavrijsen  
*Nature Electronics 2, 372-373 (2019)*

8. [Optimizing propagating spin wave spectroscopy](#)  
J. Lucassen, C.F. Schippers, L. Rutten, R.A. Duine, H.J.M. Swagten, B. Koopmans, R. Lavrijsen  
*Applied Physics Letters* **115**, 012403 (2019)
9. [Scanning electron microscopy with polarization analysis for multi-layered chiral spin textures](#)  
J. Lucassen, F. Kloodt-Twesten, R. Frompter, H.P. Oepen, R.A. Duine, H. J. M. Swagten, B. Koopmans, R. Lavrijsen  
*Applied Physics Letters* **111**, 132403 (2017)
10. [Periodically modulated ferromagnetic waveguide claddings with perpendicular magnetic anisotropy for enhanced mode conversion](#)  
Y.L.W. van Hees, J.J.G.M. van der Tol, B. Koopmans, R. Lavrijsen  
*IEEE Photonics Proceedings* (2017)
11. [Asymmetric magnetic bubble expansion under in-plane field in Pt/Co/Pt: Effect of interface engineering](#)  
R. Lavrijsen, D.M.F. Harmann, A. van den Brink, Y. Yin, M. Verheijen, B. Barcones, R.A. Duine, H. J. M. Swagten, B. Koopmans  
*Physical Review B* **91**, 104414 (2015)
12. [Multi-bit operations in vertical spintronic shift registers](#)  
R. Lavrijsen, J-H. Lee, A. Fernandez-Pacheco, D. Petit, R. Mansell, R.P. Cowburn  
*Nanotechnology* **25**, 105201 (2014)
13. [Magnetic ratchet for 3-dimensional spintronics memory and logic](#)  
R. Lavrijsen, J-H. Lee, A. Fernandez-Pacheco, D. Petit, R. Mansell, R.P. Cowburn  
*Nature* **494**, 647-650 (2013)
14. [Asymmetric Pt/Co/Pt-stack induced sign-control of current-induced magnetic domain-wall creep](#)  
R. Lavrijsen, P.P.J. Haazen, E. Mure, J.H. Franken, J.T. Kohlhepp, H.J.M. Swagten and B. Koopmans  
*Applied Physics Letters*, **100**, 262408 (2012)
15. [Tuning the RKKY-interlayer exchange coupling between single perpendicularly magnetized CoFeB layers](#)  
R. Lavrijsen, A. Fernandez-Pacheco, D. Petit, R. Mansell, J.H. Lee, R.P. Cowburn  
*Applied Physics Letters*, **100**, 052411 (2012)
16. [Magnetism in  \$\text{Co}\_{80-x}\text{Fe}\_x\text{B}\_{20}\$ ; effect of crystallization](#)  
R. Lavrijsen, P.V. Paluskar, C.T.J. Loermans, P.A. van Kruisbergen, J.T. Kohlhepp, H.J.M. Swagten and B. Koopmans.  
*Journal of Applied Physics*, **109**, 093905 (2011)
17. [Enhanced -field driven domain-wall motion in Pt/Co<sub>68</sub>B<sub>32</sub>/Pt strips](#)  
R. Lavrijsen, J.T. Kohlhepp, H.J.M. Swagten and B. Koopmans.  
*Applied Physics Letters*, **98**, 132502 (2011)
18. [Fe:O:C grown by focused-electron-beam-induced deposition: magnetic and electric properties](#)  
R. Lavrijsen, R. Cordoba, F. J. Schoenaker, T. Ellis, B. Barcones-Campo, J.T. Kohlhepp, H.J.M. Swagten, B. Koopmans, J.M. De Teresa, C. Magen, M.R. Ibarra, P. Trompenaars and J.J.L. Mulders.  
*Nanotechnology*, **22**, 025302 (2011).
19. [Controlled domain wall injection in perpendicularly magnetized strips](#)  
R. Lavrijsen, J.H. Franken, J. T. Kohlhepp, H. J. M. Swagten, B. Koopmans  
*Applied Physics Letters* **96**, 222502 (2010)

20. [Reduced domain wall pinning in ultrathin Pt/Co<sub>100-x</sub>B<sub>x</sub>/Pt with perpendicular magnetic anisotropy](#)  
 R. Lavrijsen, G. Malinowski, J.H. Franken, J. T. Kohlhepp, H. J. M. Swagten, B. Koopmans, M. Czapkiewicz, T. Stobiecki  
*Applied Physics Letters* **96**, 022501 (2010)

**Co-AUTHOR**

21. [Ultra-low energy threshold engineering for all-optical switching of magnetization in dielectric-coated Co/Gd based synthetic-ferrimagnet](#)  
 P. Li, M.J.G. Peeters, Y.L.W. Hees, R. Lavrijsen, B. Koopmans  
*Accepted at Applied Physics Letters as Editors Pick (December 2021)*
22. [An investigation of the interface and bulk contributions to the magneto-optic activity in Co/Pt multi-layered thin films](#)  
 F.E. Demirer, R. Lavrijsen, B. Koopmans  
*Journal of Applied Physics* **129**, 163904 (2021)
23. [Accurate extraction of anisotropic spin-orbit torques from harmonic measurements](#)  
 D.M.J. van Elst, M.R.A. Peters, F. Buttner, A. Wittmann, E.A. Tremsina, C.O. Avci, R. Lavrijsen, H.J.M. Swagten and G.S.D. Beach  
*Applied Physics Letters* **118**, 172403 (2021)
24. [Chiral Spin Spirals at the Surface of the van der Waals Ferromagnet Fe<sub>3</sub>GeTe<sub>2</sub>](#)  
 M.J. Meijer, J. Lucassen, R.A. Duine, H.J.M. Swagten, B. Koopmans, R. Lavrijsen, M.H.D. Guimaraes  
*NanoLetters* **20** (12), 8563-8568 (2020)
25. [Design and modelling of a novel integrated photonic device for nano-scale magnetic memory reading](#)  
 E.F. Demirer, C. van der Boomen, J. van der Tol, B. Koopmans, R. Lavrijsen  
*MDPI, Applied Physics* (2020)
26. [Dynamics of all-optically switched magnetic domains in Co/Gd heterostructures with Dzyaloshinskii-Moriya interaction](#)  
 A. Cao, Y.L.W. van Hees, R. Lavrijsen, W. Zhao, B. Koopmans  
*Physical Review B* **102**, 104412 (2020)
27. [Enhanced all-optical switching and domain wall velocity in annealed synthetic-ferrimagnetic multilayers](#)  
 L. Wang, Y.L.W. van Hees, R. Lavrijsen, W. Zhao, B. Koopmans  
*Applied Physics Letters* **117**, 022408 (2020)
28. [Magnetic domain wall curvature induced by wire edge pinning](#)  
 L. Herrera Diaz, F. Ummelen, V. Jeudy, G. Durin, R. Diaz-Pardo, A. Casiraghi, G. Agnus, D. Bouville, J. Langer, B. Ocker, R. Lavrijsen, H.J.M. Swagten, D. Ravelosona  
*Applied Physics Letters* **117**, 062406 (2020)
29. [Structural transitions of skyrmion lattices in synthetic antiferromagnets](#)  
 E. van Walsum, R.A. Duine, J. Lucassen, R. Lavrijsen, H.J.M. Swagten,  
*Physical Review B* **100**, 064402 (2019)
30. [Long-range chiral exchange interaction in synthetic antiferromagnets](#)  
 D.S. Han, K. Lee, J.P. Hanke, K.W. Kim, Y. Mokrousov, W. Yoo, Y. van Hees, T.W. Kim, R. Lavrijsen, C.Y. You, H.J.M. Swagten, M.H. Jung, M. Klauui  
*Nature Materials* **18**, 703-709 (2019)

31. [Investigating optically excited terahertz standing spin waves using noncollinear magnetic bilayers](#)  
M.L.M. Laliou, R. Lavrijsen, R.A. Duine, B. Koopmans  
*Physical Review B* **99**, 184439 (2019)
32. [Boosting the Performance of WO<sub>3</sub>/n-Si Heterostructures for Photo-electrochemical Water Splitting: from the Role of Si to Interface Engineering](#)  
Y. Zhao, G. Brocks, H. Genuit, R. Lavrijsen, M.A. Verheijen, A. Bieberle-Huetter  
*Advanced Energy Materials* **4**, 9262–9270 (2019)
33. [Electrochemistry of Sputtered Hematite Photoanodes: A Comparison of Metallic DC versus Reactive RF Sputtering](#)  
R. Sinha, R. Lavrijsen, M.A. Verheijen, E. Zoethout, H. Genuit, M.C.M. van de Sanden, A. Bieberle-Huetter  
*ACS Omega* **4**, 5, 9262-9270 (2019)
34. [Integrating all-optical switching with spintronics](#)  
M.L.M. Laliou, R. Lavrijsen, B. Koopmans  
*Nature Communications* **10**, 110 (2019)
35. [Physical and chemical defects in WO<sub>3</sub> thin films and their impact on photoelectrochemical water splitting](#)  
Y. Zhao, S. Balasubramanyam, R. Sinha, R. Lavrijsen, M.A. Verheijen, A.A. Bol, A. Bieberle-Huetter  
*ACS Applied Energy Materials* **1**, 5887-5895 (2018)
36. [Plasma radiation studies in Magnum-PSI using resistive bolometry](#)  
G.G. van Eden, M.L. Reinke, S. Brons, G. van der Bijl, R. Lavrijsen, S.P. Huber, R. Perillo, M.C.M. van de Sanden, T.W. Morgan  
*Nuclear Fusion* **58**, 106006 (2018)
37. [Fabrication of Scaffold-Based 3D Magnetic Nanowires for Domain Wall Applications](#)  
D. Sanz-Hernandez, R.F. Hamans, J. Osterrieth, J.W. Liao, L. Skoric, J.D. Fowlkes, P.D. Rack, A. Lippert, S.F. Lee, R. Lavrijsen, A. Fernandez-Pacheco  
*Nanomaterials* **8**-7, 483 (2018)
38. [Versatile microfluidic flow generated by moulded magnetic artificial cilia](#),  
S.Z. Zhang, Y. Wang, R. Lavrijsen, P.R. Onck, J.M.J. den Toonder  
*Sensors and Actuators B – Chemical* (2017)
39. [Chiral Magnetoresistance in Pt/Co/Pt zigzag wires](#)  
Y.X. Yin, D.S. Han, J.S. Kim, R. Lavrijsen, K.J. Lee, S.W. Lee, K.W. Kim, H.W. Lee, H.J.M. Swagten, B. Koopmans  
*Applied Physics Letters* **112**, 249901 (2018)
40. [Synthesis of Ni Nanoparticles with Controllable Magnetic Properties by Atmospheric Pressure Microplasma Assisted Process](#)  
L. Liu, S. Li, S.A. Starostin, R. lavrijsen, W. Wang, V. Hessel  
*American Society of Chemical Engineers (AIChE)* (2017)
41. [Deterministic all-optical switching of synthetic ferrimagnets using single femtosecond laser pulses](#)

- M.L.M. Laliou, M.J.G. Peeters, S.R.R. Haenen, [R. Lavrijsen](#), B. Koopmans  
*Physical Review B*, **96**, 220411 (2017)
42. [Sputter grown Fe and Cr/Fe multilayers with fourfold magnetic anisotropy on GaAs](#),  
R.H. Mansell, D.C.M.C. Petit, A. Fernandez-Pacheco, [R. Lavrijsen](#), J.H. Lee, R.P.  
Cowburn  
*IEEE transactions on magnetics*, **54**, 2000105 (2018)
43. [Thickness dependence of unidirectional spin-Hall magnetoresistance in metallic bilayers](#)  
Y. Yin, D.-S. Han, M.C.H. de Jong, [R. Lavrijsen](#), R.A. Duine, H.J.M. Swagten, Bert  
Koopmans  
*Applied Physics Letters*, **111**, 232405 (2017)
44. [Fabrication, Detection, and Operation of a Three-Dimensional Nanomagnetic Conduit](#),  
D. Sanz-Hernández, R.F. Hamans, J.-W. Liao, A. Welbourne, [R. Lavrijsen](#), and  
Amalio Fernández-Pacheco  
*ACS Nano* (2017)
45. [Visible-light-promoted gas-phase water splitting using porous WO<sub>3</sub>/BiVO<sub>4</sub> photoanodes](#)  
T. Stoll, G. Zafeiropoulos, I. Dogan, H. Genuit, [R. Lavrijsen](#), B. Koopmans, M.N.  
Tsampas  
*Electrochemistry Communications* **82**, 47-51 (2017)
46. [Nanostructuring of iron thin films by high flux low energy helium plasma](#)  
A. Bieberle-Hutter, I. Tanyeli, [R. Lavrijsen](#), B. Koopmans, R. Sinha, M.C.M. van de  
Sanden  
*Thin Solid Films* **631**, 50-56 (2017)
47. [Vector magnetometry of Fe/Cr/Fe trilayers with biquadratic coupling](#)  
R. Mansell, D.C.M.C. Petit, A. Fernandez-Pacheco, J.H. Lee, S.L. Chin, [R. Lavrijsen](#),  
R.P. Cowburn  
*Journal of Physics D-Applied Physics* **50**, 19LT02 (2017)
48. [Zigzag Domain Wall Mediated Reversal in Antiferromagnetically Coupled Layers](#)  
R. Mansell, A. Fernandez-Pacheco, D.C.M.C. Petit, N.J. Steinke, J.H. Lee, [R.](#)  
[Lavrijsen](#), R.P. Cowburn  
*IEEE Magnetism Letters* **8**, 4102304 (2017)
49. [Chiral Magnetoresistance in Pt/Co/Pt zigzag wires](#)  
Y. Yin, D-S. Han, J-S. Kim, [R. Lavrijsen](#), K-J. Lee, S-W. Lee, K-W. Kim, H-W. Lee,  
H.J.M. Swagten, B. Koopmans  
*Applied Physics Letters* **110**, 122401 (2017)
50. [Systematic layer-by-layer characterisation of multilayers for three-dimensional data storage and logic](#)  
D. Petit, [R. Lavrijsen](#), J. H. Lee, R. Mansell, A. Fernandez-Pacheco, R. P. Cowburn  
*Nanotechnology* **27**, 155203 (2016)
51. [Thickness dependence of the interfacial Dzyaloshinskii-Moriya interaction in inversion symmetry broken systems](#)  
J. Cho, N-H. Kim, S. Lee, J-S. Kim, [R. Lavrijsen](#), A. Solignac, Y. Yin, D-S. Han, N. J.  
J. van Hoof, H. J. M. Swagten, B. Koopmans, C-Y. You  
*Nature Communications* **6**, 7635 (2015)
52. [A robust soliton ratchet using combined antiferromagnetic and ferromagnetic interlayer couplings](#)

- R. Mansell, R. Lavrijsen, A. Fernandez-Pacheco, D. C. M. C. Petit, J. H. Lee, B. Koopmans, H. J. M. Swagten, R. P. Cowburn  
*Applied Physics Letters* **106**, 092404 (2015)
53. [Magnetic properties and interlayer coupling of epitaxial Co/Cu films on Si](#)  
R. Mansell, D. Petit, A. Fernandez-Pacheco, R. Lavrijsen, J.H. Lee, R. P. Cowburn  
*Journal of Applied Physics*, **116**, 063906 (2014)
54. [Soliton propagation in micron-sized magnetic ratchet elements](#)  
J.-H. Lee, D. Petit, R. Lavrijsen, A. Fernandez-Pacheco, R. Mansell, R.P. Cowburn  
*Applied Physics Letters*, **104**, 232404 (2014)
55. [Beam-Induced Fe Nanopillars as Tunable Domain-Wall pinning Sites](#)  
J.H. Franken, M.A.J. van der Heijden, T.H. Ellis, R. Lavrijsen, C. Daniels, D. McGrouther, H.J.M. Swagten, B. Koopmans  
*Advanced Functional Materials* **24**, **23**, 3508-3514 (2014)
56. [Domain Imaging during soliton propagation in a 3D magnetic ratchet](#)  
J.-H. Lee, R. Mansell, D. Petit, A. Fernandez-Pacheco, R. Lavrijsen, R. P. Cowburn  
*SPIN*, Vol 3, No. 4, 134001 (2013)
57. [Domain wall depinning governed by the spin Hall effect](#)  
P.P.J. Haazen, E. Mure, J.H. Franken, R. Lavrijsen, H.J.M. Swagten, B. Koopmans  
*Nature Materials* **12**, 299-303 (2013)
58. [Magnetic states in low-pinning high-anisotropy magnetic nanostructures suitable for dynamic imaging](#)  
F. Buttner, C. Moutafis, A. Bisig, P. Wohlhuter, C.M. Gunther, J. Mohanty, J. Guilhufe, M. Schneider, C.V. Schmising, S. Schaffert, B. Pfau, M. Hantschmann, M. Riemeier, M. Emmel, S. Finizio, G. Jakob, M. Weigand, J. Rhensius, J.H. Franken, R. Lavrijsen, H.J.M Swagten, H. Stoll, S. Eisebitt, M. Klaui  
*Physical Review B*, **87**, 134422 (2013)
59. [Controllable nucleation and propagation of topological magnetic solitons in CoFeB/Ru ferrimagnetic superlattices](#)  
A. Fernandez-Pacheco, D. Petit, R. Mansell, R. Lavrijsen, J.H. Lee, R.P. Cowburn  
*Physical Review B*, **86**, 104422 (2012)
60. [Giant anomalous Hall effect in Fe-based microwires grown by focused-electron-beam-induced deposition](#)  
R. Cordoba, R. Lavrijsen, A. Fernandez-Pacheco, M.R. Ibarra, F. J. Schoenaker, T. Ellis, B. Barcones-Campo, J.T. Kohlhepp, H.J.M. Swagten, B. Koopmans, J.J.L. Mulders and J.M. De Teresa  
*Journal of Physics D: Applied Physics*. **45**, 035001 (2012)
61. [Domain-Wall pinning by local control of anisotropy in Pt/Co/Pt strips](#)  
J.H. Franken, M. Hoeijmakers, R. Lavrijsen, H.J.M. Swagten  
*Journal of Physics: Condensed matter*, **24**, 024216 (2012)
62. [Precise control of domain wall injection and pinning using helium and gallium focused ion beams](#)  
J.H. Franken, M. Hoeijmakers, R. Lavrijsen, J. T. Kohlhepp, H. J. M. Swagten, B. Koopmans  
*Journal of Applied Physics*, **109**, 07D504 (2011)
63. [Tunable magnetic domain wall oscillator at an anisotropy boundary](#)  
J.H. Franken, R. Lavrijsen, J. T. Kohlhepp, H. J. M. Swagten, B. Koopmans  
*Applied Physics Letters*, **98**, 102512 (2011)
64. [Spin motive forces due to magnetic vortices and domain walls](#)  
M.E. Lucassen, G.C.F.L. Kruis, R. Lavrijsen, H.J.M. Swagten, B. Koopmans and R.A.



Duine

*Physical Review B*, **84**, 014414 (2011)

65. [Correlation between Magnetism and Spin-Dependent Transport in CoFeB Alloys](#)

P.V. Paluskar, [R. Lavrijsen](#), M. Sicot, J. T. Kohlhepp, H.J.M. Swagten, and B. Koopmans

*Physical Review Letters* **102**, 016602 (2009)

66. [Magnetization Dynamics and Gilbert damping in ultrathin Co<sub>48</sub>Fe<sub>32</sub>B<sub>20</sub> films with out-of-plane anisotropy](#)

G. Malinowski, K.C. Kuiper, [R. Lavrijsen](#), H.J.M. Swagten, B. Koopmans

*Applied Physics Letters* **94**, 102501 (2009)

67. [Tunneling spin polarization and annealing of Co<sub>72</sub>Fe<sub>8</sub>B<sub>20</sub>](#)

H.J.M. Swagten, P.V. Paluskar, [R. Lavrijsen](#), J.T. Kohlhepp, B. Koopmans

*Journal of Magnetism and Magnetic Materials* **310** (2, Pt. 3), 2012-2014 (2007)

## PRESENTATIONS

- i. **Magnetic chirality controlled by the interlayer exchange interaction**  
[R. Lavrijsen](#), M.J.M. Meijer, J. Lucassen, F. Kloodt-Twesten, R. Frompter, O. Kurnosikov, R.A. Duine, H.J.M. Swagten, B. Koopmans  
SOL-SKYMAG 2021, San-Sebastian Spain; *online due to Pandemic*  
(June 2021)
- ii. **(Invited) Spin-wave detection for DMI and beyond the optical diffraction limit**  
[R. Lavrijsen](#), J. Lucassen, M. Peeters, C. Schippers, B. Koopmans, H. Swagten  
Magnetofon workshop on ultrafast Opto-Magneto-Electronics (COST ACTION)  
(November 2020)
- iii. **Ferrimagnetic Co/Gd bilayers for combining All-Optical-Switching and Spintronics,**  
[R. Lavrijsen](#), M. Peeters, M.L.M. Laliu, Y. van Hees, K. Poissonnier, B. Koopmans  
10th International Symposium on Metallic Multilayers, Madrid, Spain  
(June 2019)
- iv. **(Invited) All-optical switching in Co/Gd bilayers and chirality determination using SEMPA,** [R. Lavrijsen](#), et al.  
M-SNOWS, Nancy, France  
(September 2018)
- v. **(Invited) On spin-orbit torques, chiral magnetization textures and e-control of magnetization in ultrathin multilayers**  
[R. Lavrijsen](#), H.J.M. Swagten, B. Koopmans  
International Conference on Nanoscale Magnetism, Turkey  
(September 2016) *cancelled due to political situation in Turkey*
- vi. **Manipulating the RKKY coupling strength by electric fields**  
[R. Lavrijsen](#), M. Laliu, R. Raijmakers, H.J.M. Swagten, B. Koopmans  
IEEE 2016 International Symposium On Metallic Multilayers, Uppsala, Sweden  
(June 2016)
- vii. **(Invited) Asymmetric exchange in Pt/Co/Ir/Pt multilayers**  
[R. Lavrijsen](#), R. Duine, H.J.M. Swagten, B. Koopmans  
Wiesendanger group Symposium, Hamburg, Germany

- (June 2015)
- viii. **(Invited) Domain-walls, magnetic bubbles, and the Dzyaloshinskii-Moriya interaction?**  
R. Lavrijsen, D. Hartmann, R. Duine, H.J.M. Swagten, B. Koopmans  
 SPRING2015, Spring meeting EMRS, Lille, France  
 (May 2015)
- ix. **(Invited) Symmetric exchange and charging the interlayer exchange coupling**  
R. Lavrijsen, D. Hartmann, R. Duine, H.J.M. Swagten, B. Koopmans  
 Thin Film Magnetization Group Symposium, Cambridge, UK  
 (March 2015)
- x. **Tuning asymmetric exchange: towards an ideal racetrack memory?**  
R. Lavrijsen, H.J.M. Swagten, B. Koopmans  
 COBRA symposium, TU/e, Eindhoven, The Netherlands  
 (February 2015)
- xi. **(Invited) Domain-wall depinning governed by the spin Hall effect and Dzyaloshinskii-Moriya interaction**  
R. Lavrijsen, J.H. Franken, D. Hartmann, R. Duine, H.J.M. Swagten, B. Koopmans  
 59<sup>th</sup> Annual Magnetism & Magnetic Materials Conference, Honolulu, Hawaii  
 (November 2014)
- xii. **(Invited) On domain-walls and spin-orbit torques**  
R. Lavrijsen, H.J.M. Swagten, P.J. Haazen, E. Mure, J.H. Franken, B. Koopmans  
 Deutsche Physikalische Gesellschaft Spring Meeting, Dresden, Germany  
 (April 2014)
- xiii. **On spin-orbitronics and 3D soliton ratchets**  
R. Lavrijsen, H.J.M. Swagten, P.J. Haazen, E. Mure, J.H. Franken, B. Koopmans, J-H. Lee, A. Fernandez-Pacheco, D. Petit, R. Mansell, R.P. Cowburn  
 Physics@FOM Meeting, Veldhoven, The Netherlands  
 (January 2014)
- xiv. **(Invited) On spin-orbitronics, soliton ratchets and domain walls**  
R. Lavrijsen; Workshop: Spintronics: Its Frontiers, Challenges and Opportunities  
 Nanyang Technological University Singapore, Singapore  
 (January 2014)
- xv. **(Invited) Domain-wall depinning governed by the spin Hall effect**  
R. Lavrijsen, H.J.M. Swagten, P.J. Haazen, E. Mure, J.H. Franken, B. Koopmans  
 Joint European Magnetism Symposia, Rhodes, Greece  
 (August 2013)
- xvi. **(Invited) Multiple soliton propagation through a magnetic superlattice**  
R. Lavrijsen, J-H. Lee, A. Fernandez-Pacheco, D. Petit, R. Mansell, R.P. Cowburn  
 IEEE 2013 International Symposium On Metallic Multilayers, Kyoto, Japan  
 (May 2013)
- xvii. **(Invited) Towards fully 3-dimensional spintronics - MRAM**  
R. Lavrijsen, J-H. Lee, A. Fernandez-Pacheco, D. Petit, R. Mansell, R.P. Cowburn  
 IMEC, Leuven, Belgium  
 (December 2012)
- xviii. **3D spintronics: Perpendicularly magnetized soliton ratchet**



R. Lavrijsen, J-H. Lee, A. Fernandez-Pacheco, D. Petit, R. Mansell, R.P. Cowburn  
Joint European Magnetic Symposia, Parma, Italy  
(September 2012)

- xix. Single perpendicularly magnetized CoFeB layers for 3D spintronics**  
R. Lavrijsen, A. Fernandez-Pacheco, D. Petit, J-H. Lee, R. Mansell, R.P. Cowburn  
Intermag, IEEE International Magnetism Conference, Vancouver, Canada  
(May 2012)
- xx. Domain walls in perpendicularly magnetized stripes violating spin-transfer torque?**  
R. Lavrijsen, J.T. Kohlhepp, H.J.M. Swagten, B. Koopmans  
55<sup>th</sup> Annual Conference on Magnetism & Magnetic Materials, Atlanta, USA  
(November 2010)
- xxi. (Invited) Domain walls in perpendicularly magnetized stripes violating spin-transfer torque?**  
R. Lavrijsen, J.T. Kohlhepp, H.J.M. Swagten, B. Koopmans  
IEEE 2010 International Symposium On Metallic Multilayers, Berkeley, USA  
(September 2010)
- xxii. Perpendicular Pt / CoFeB / Pt, a tunable system for domain wall dynamics**  
R. Lavrijsen, G. Malinowski, J.T. Kohlhepp, H.J.M. Swagten, B. Koopmans  
53<sup>rd</sup> Annual Conference on Magnetism & Magnetic Materials, Austin, Texas, USA  
(November 2008)

## SUPERVISION PD

1. Dr. M.Sc., Dong-Soo Han (2014-2016)
2. Dr. M.Sc., Jung-Woo Koo (2016-2017)
3. Dr. M.Sc., Mariia Efremova (*starting Feb. 2022*)

## SUPERVISION PHD

- |  |                                |
|--|--------------------------------|
| 1. Dr. Ir. Jeroen Franken (2014)                 |                                |
| 2. Dr. Ir. Sjors Schellekens (2014)              |                                |
| 3. Dr. Ir. Arno van de Brink (2016)              |                                |
| 4. Dr. Ir. Yuxiang Yin (2018)                    | Co-Promotor                    |
| 5. Dr. Ir. Mark Laliou (2019)                    | Co-Promotor                    |
| 6. Dr. Ir. Fanny Ummelen (2020)                  | Co-Promotor                    |
| 7. Dr. Ir. Juriaan Lucassen (2020)               | Co-Promotor (Cum-Laude)        |
| 8. Dr. M.Sc. Anni Cao (2020)                     | Co-Promotor                    |
| 9. <i>M.Sc. Marielle Meijer (Expected 2021)</i>  | <i>Co-Promotor</i>             |
| 10. <i>M.Sc. Lucas Wang (Expected 2021)</i>      | <i>Co-Promotor</i>             |
| 11. <i>M.Sc. Ece Demirer (Expected 2021)</i>     | <i>Co-Promotor</i>             |
| 12. <i>M.Sc. Zilu Wang (Expected 2022)</i>       | <i>Co-Promotor</i>             |
| 13. <i>Ir. Youri van Hees (Expected 2022)</i>    | <i>Co-Promotor</i>             |
| 14. <i>Ir. Tom Lichtenberg (Expected 2022)</i>   | <i>Co-Promotor</i>             |
| 15. <i>M.Sc. Jianing Li (Expected 2023)</i>      | <i>1<sup>st</sup> promotor</i> |
| 16. <i>M.Sc. Pingzhi Li (Expected 2023)</i>      | <i>2<sup>nd</sup> promotor</i> |
| 17. <i>M.Sc. Adrien Petrillo (Expected 2024)</i> | <i>1<sup>st</sup> promotor</i> |

- |   |                          |
|---|--------------------------|
| 18. M.Sc. Thomas Kools (Expected 2024)      | 1 <sup>st</sup> promotor |
| 19. M.Sc. Mark de Jong (Expected 2024)      | 1 <sup>st</sup> promotor |
| 20. M.Sc. Julian Hintermayr (Expected 2025) | 2 <sup>nd</sup> promotor |
| 21. M.Sc. Lorenzo Gnoatto (Expected 2025)   | 1 <sup>st</sup> promotor |

## SUPERVISION MASTER PROJECTS

1. M.Sc. Michael Beljaars (2008), *Electron beam induced deposition of Iron*
2. M.Sc. Coen Loermans (2009), *Perpendicularly magnetized ultrathin Pt/CoFeB/Pt films*
3. M.Sc. Paul Janssen (2009), *The nanostencil process*
4. M.Sc. Frank Schoenaker (2010), *Ferromagnetic nanostructures by EBID*
5. M.Sc. Jeroen Franken (2010), *Domain wall motion PMA films*
6. M.Sc. Paul Soto (2010), *Nano-stencil fabrication for spin-torque devices*
7. M.Sc. Geerit Kruis (2011), *Racing domain walls*
8. M.Sc. Tim Ellis (2011), *Novel Deposition of Magnetic Nanostructures*
9. M.Sc. Mark Lalieu (2014), *Charging the interlayer exchange coupling*
10. M.Sc. Juriaan Lucassen (2015), *Determining the SHE using STS*
11. M.Sc. Dorris Slapak (2016), *Growing BaTiO<sub>3</sub> for future magnetic memory devices*
12. M.Sc. Guido Hendriks (2016), *Synth.-Multif. heterostructures with the Spin Hall Effect*
13. M.Sc. Pim van Nispen (2017), *Characterising the DMI by magnetic bubble expansion*
14. M.Sc. Rens Raijmakers (2016), *Tuneable interlayer exchange coupling*
15. M.Sc. Paul de Brouwer (2017), *Tuneable interlayer exchange coupling*
16. M.Sc. Youri van Hees (2018), *Magnetic claddings for photonic integrated circuits*
17. M.Sc. Rick Ernst (2018), *Magnetic SAF nanoparticles for bio and cancer treatment*
18. M.Sc. Kenneth Poissonnier (2019), *Co/Gd ferrimagnets for AOS*
19. M.Sc. Kelvin van Hoorn (2020), *@AMS Functionalized pressure sensor membranes*
20. M.Sc. Gyan van der Jagt (2020), *Focused Ion Beam magnetic patterning for SEMPA*
21. M.Sc. Mark de Jong (2020), *MFM for Skyrmion injection*
22. M.Sc. Huub van der Veeke (2020) *@ASML, MO cladding based current sensor*
23. M.Sc. Bennert Smit (2021), *FIB irradiation for Skyrmion Nucleation*
24. M.Sc. Axel Deenen (2021), *MUMAX Simulations for propagating spin wave spectroscopy*
25. M.Sc. Moos Muller (2021), *MUMAX Simulations of ferrimagnetic multilayers*
26. M.Sc. Juliane Strookman, (expected 2022), *Co/Gd interfacial anisotropy characterisation*
27. M.Sc. Paul van Nieuwerkerk (expected 2022), *120 nm diameter Magnetic Nanoplatelets*
28. M.Sc. Wouter Kuyper (expected 2022), *iDMI of Co/Gd interfaces using SEMPA*
29. M.Sc. Lieke Ruijs (expected 2022), *Magneto-Mechanical Torque characterization*

## SUPERVISED BACHELOR PROJECTS

30. B.Sc. Joris Jongen (2008), *Quantitative Magnetic Force Microscopy*
31. B.Sc. Rik Paesen (2008), *Field driven and current induced domain wall motion*
32. B.Sc. Tim Weekenstro (2009), *Ion Beam Milling*
33. B.Sc. Roger Bosch (2009), *AMR of EBID-deposited Fe nanowires*
34. B.Sc. Can Avci (2009), *Magnetic characterization of Co/Pt layers*
35. B.Sc. Mark Lalieu (2012), *Towards a working 3D data storage device*
36. B.Sc. Dion Hartmann UU (2014), *Domain-wall motion in materials with PMA*
37. B.Sc. Jelte Schlatmann (2017), *3D vector magnet for anisotropy mapping*
38. B.Sc. Amber Heskens (2018), *Theory for 3D magnonics*
39. B.Sc. Jan van Mastriigt (2018), *Characterising Magnetic NanoPlatelets*

40. B.Sc. Huub van der Veecken (2018), *Characterising Co/Gd Ferrimagnetic systems*
41. B.Sc. Stef van den Hoek (2019), *Simulating the behaviour of SAF platelets*
42. B.Sc. Jasper van Tongeren (2019), *Simulating the attraction and repulsion beads*
43. B.Sc. Floris van Riel (2019), *MFM imaging of magnetic skyrmions*
44. B.Sc. Paul van de Meughevel (2019), *Spin-current assisted All-Optical-Switching*
45. B.Sc. Pim Lueb (2020), *Characterising the anisotropy of Anti-Ferromagnets*
46. B.Sc. Gijs Simons (2020), *Modelling of s-d interaction in RKKY coupled stacks for AOS*
47. B.Sc. Sara Tjon (2020), *Modelling of mechanical response of mNPLs*
48. B.Sc. Max van der Schans (2020), *Literature survey and modelling for mNPLs*
49. B.Sc. Wouter Kuyper (2020), *Co/Gd bilayer characterization*
50. B.Sc. Carolus Hamers (2021), *Nanoplatelets in rotating magnetic fields*
51. B.Sc. Cas Robben (2021), *Ultrafast demagnetization of Synthetic Ferrimagnets*
52. B.Sc. Marnix van Gorp (2021), *Magnetostatics of Co/Gd quad-layers*
53. B.Sc. Roland van der Vegt (2021), *Laser induced demagnetization of NPs in liquid*
54. B.Sc. Tom Jenniskens (2021), *Flip-Chip FMR*
55. B.Sc. Wieneke Sijtsma (2021), *Coercivity increase of nanopatterned SAF's*
56. B.Sc. Stijn van der Voort (expected 2022), *Co/Gd magnetostatics*

## **SUPERVISED EXTERNAL INTERNSHIPS**

57. @Cambridge UK (2017), Ruben Hamans, *3D scaffolds for magnetic injection*
58. @Cambridge UK (2017), Kaylee Hakkel, *Synthetic Antiferromagnets*
59. @ASML NL (2019), Jan van Mastrigt, *Ultrasensitive current sensors*
60. @SCIL NL (2019), Huub van der Veecken, *Characterizing the imprint wetting process*
61. @MIT USA (2019), Don van Elst, *SOT's in Co/Gd multilayers*
62. @Argonne USA (2019), Arthur Hendriks, *MOKE using plasmonics ultrajets*
63. @Singapore (2020), Bennert Smit, *Magneto resistance setup build and charactersation*
64. @ETH Zurich CH (2020), Floris van Riel, *Spin-Orbit torque quantification*
65. @Pro-Drive NL (2020), Tamar Cromwijk, *Laser-beam steering*
66. @ETH Zurich CH (2021), Floris van Riel, *Tuning magnetic textures with FE's*
67. @SCIL NanoImprint NL (2021), Paul v/d Meughevel, *Sol-Gel deformation*
68. @EPFL Lausanne CH (2021), Axel Deenen, *3D magnonic simulations*
69. @SCIL Nanoimprint NL(2021), Lieke Ruijs, *Fourier Microscopy*
70. @ETH Zurich CH (2021), Lian de Jong, *Spin-Orbit Torques*
71. @IMEC BE (expected 2022), Stijn van de Sande, *Inverse Magnetostriction via FE's*