

Publications in international journals 2000 - 2009

1. *'Extended excitons and compact heliumlike biexcitons in type-II quantum dots'*,
B. Bansal, S. Godefroo, M. Hayne, G. Medeiros-Ribeiro and V.V. Moshchalkov,
Physical Review B **80**, 205317 {5 pages} (2009). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **20**, Issue 22 (2009)]
2. *'Temperature dependence of the photoluminescence of self-assembled InAs/GaAs quantum dots studied in high magnetic fields'*,
T. Nuytten, M. Hayne, M. Henini and V.V. Moshchalkov,
Microelectronics Journal **40** 486-488 (2009). [[Download](#)]
3. *'Excitonic Mott transition in type-II quantum dots'*,
B. Bansal, M. Hayne, M. Geller, D. Bimberg and V.V. Moshchalkov,
Physical Review B **77**, 241304(R) {4 pages} (2008). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **17**, Issue 26 (2008)]
4. *'Temperature dependence of the photoluminescence of self-assembled InAs/GaAs quantum dots in pulsed magnetic fields'*,
T. Nuytten, M. Hayne, M. Henini and V.V. Moshchalkov,
Physical Review B **77**, 115348 {5 pages} (2008). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **17**, Issue 14 (2008)]
5. *'Classification and control of the origin of photoluminescence from Si nanocrystals'*,
S. Godefroo, M. Hayne, M. Jivanescu, A. Stesmans, M. Zacharias, O. Lebedev, G. Van Tendeloo and
V. V. Moshchalkov,
Nature Nanotechnology **3**, 174-178 (2008). [[Download](#)] {Impact factor 20.57}
[Selected for Nature Research Highlights, Nature **452**, 4-5 (2008)] [[Download](#)]
6. *'Magnetic field-dependent photoluminescence linewidths as a probe of disorder length scales in quantum wells'*,
B. Bansal, M. Hayne, B.M. Arora and V. V. Moshchalkov,
Applied Physics Letters **91**, 251108 {3 pages} (2007). [[Download](#)]
7. *'Exciton confinement in InAs/InP quantum wires and quantum wells in the presence of a magnetic field'*,
Y. Sidor, B. Partoens, F.M. Peeters, J. Maes, M. Hayne, D. Fuster, Y. González, L. González and V.V. Moshchalkov,
Physical Review B **76**, 195320 {8 pages} (2007). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **16**, Issue 23 (2007)]
8. *'InAs/InP quantum dots (QD): from fundamental understanding to coupled QD 1.55 μm laser applications'*,
C. Cornet, M. Hayne, A. Schliwa, F. Doré, J. Even, D. Bimberg, V. V. Moshchalkov and S. Loualiche,
Physica Status Solidi (c) **4** 458-461 (2007). [[Download](#)]
9. *'Increase of charge-carrier redistribution efficiency in a laterally organized superlattice of coupled quantum dots'*,
C. Cornet, M. Hayne, C. Levallois, P. Caroff, L. Joulaud, E. Homeyer, C. Paranthoen, J. Even, C. Labbé, H. Folliot,
S. Loualiche and V.V. Moshchalkov,
Physical Review B **74**, 245315 {10 pages} (2006). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **15**, Issue 1 (2007)]
10. *'InAs/InP quantum dots: from single to coupled dots applications'*,
C. Cornet, A. Schliwa, M. Hayne, N. Chauvin, F. Doré, J. Even, V.V. Moshchalkov, D. Bimberg, G. Bremond, C. Bru-
Chevallier, M. Gendry and S. Loualiche,
Physica Status Solidi (c) **3** 4039-4042 (2006). [[Download](#)]
11. *'Réalisation d'un laser à faible courant de seuil, avec des boites quantiques InAs/InP organisées et couplées latéralement'*,
C. Cornet, M. Hayne, C. Levallois, P. Caroff, E. Homeyer, J. Even, C. Paranthoen, H. Folliot, C. Labbé and
S. Loualiche,
Journal de Physique IV **135**, 141-142 (2006). [[Download](#)]
12. *'High-field magneto-excitons in unstrained GaAs/Al_xGa_{1-x}As quantum dots'*,
Y. Sidor, B. Partoens, F.M. Peeters, N. Schildermans, M. Hayne, V.V. Moshchalkov, A. Rastelli and O.G. Schmidt,
Physical Review B **73**, 155334 {8 pages} (2006). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **13**, Issue 19 (2006)]
13. *'Impact of the capping layers on lateral confinement in InAs/InP quantum dots for 1.55 μm laser applications studied by magnetophotoluminescence'*,

- C. Cornet, C. Levallois, P. Caroff, H. Folliot, C. Labbé, J. Even, A. Le Corre, S. Loualiche, M. Hayne and V.V. Moshchalkov,
Applied Physics Letters **87**, 233111 {3 pages} (2005). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **12**, Issue 24 (2005)]
14. '*Non-parabolic band effects in GaAs/Al_xGa_{1-x}As quantum dots and ultrathin quantum wells*',
N. Schildermans, M. Hayne, V.V. Moshchalkov, A. Rastelli and O.G. Schmidt,
Physical Review B **72**, 115312 {5 pages} (2005). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **12**, Issue 13 (2005)]
15. '*Electron wave-function spillover in self-assembled InAs/InP quantum wires*',
J. Maes, M. Hayne, Y. Sidor, B. Partoens, F.M. Peeters, Y. González, L. González, D. Fuster, J.M. Garcia and V.V. Moshchalkov,
Physical Review B **70**, 155311 {7 pages} (2004). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **10**, Issue 18 (2004)]
Physical Review B **76** 1999902(E) {1 page} (2007). [[Download](#)]
16. '*Magnetophotoluminescence study of the influence of substrate orientation and growth interruption on the electronic properties of InAs/GaAs quantum dots*',
S. Godefroo, J. Maes, M. Hayne, M. Henini, F. Pulizzi, A. Patané, L. Eaves and V.V. Moshchalkov,
Journal of Applied Physics **96**, 2535-2539 (2004). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **10**, Issue 11 (2004)]
17. '*Optically induced charging effects in self-assembled GaSb/GaAs quantum dots*',
M. Hayne, O. Razinkova, S. Bersier, R. Heitz, L. Müller-Kirsch, M. Geller, D. Bimberg and V.V. Moshchalkov,
Physical Review B **70**, 081302(R) {4 pages} (2004). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **10**, Issue 8 (2004)]
18. '*Magneto-photoluminescence of stacked self-assembled InAs/GaAs quantum dots*',
J. Maes, M. Hayne, M. Henini, F. Pulizzi, A. Patané, L. Eaves and V.V. Moshchalkov,
Physica B **346-347**, 428-431 (2004). [[Download](#)]
19. '*Pulsed magnetic fields as a probe of semiconductor nanostructures*'
M. Hayne, J. Maes, S. Bersier, M. Henini, L. Müller-Kirsch, R. Heitz, D. Bimberg and V.V. Moshchalkov,
Physica B **346-347**, 421-427 (2004). [[Download](#)]
20. '*Diamond as a magnetic field calibration probe*',
J. Maes, K. Iakoubovskii, M. Hayne, A. Stesmans and V.V. Moshchalkov,
Journal of Physics D: Applied Physics **37**, 1102-1106 (2004). [[Download](#)]
21. '*Confinement in self-assembled InP/InAs quantum wires studied by magneto-photoluminescence*',
J. Maes, M. Hayne, L. González, D. Fuster, J.M. Garcia and V.V. Moshchalkov,
Physica E **21**, 261-264 (2004). [[Download](#)]
22. '*Magneto-photoluminescence study of type-II charge confinement in epitaxially grown GaInP₂*'
M. Hayne, J. Maes, Y.M. Manz, O.G. Schmidt and V.V. Moshchalkov,
Physica E **21**, 257-260 (2004). [[Download](#)]
23. '*Coulomb binding of electrons to multiply charged GaSb/GaAs self-assembled quantum dots*',
M. Hayne, J. Maes, S. Bersier, A. Schliwa, L. Müller-Kirsch, C. Kapteyn, R. Heitz, D. Bimberg and V.V. Moshchalkov,
Physica E **21**, 189-192 (2004). [[Download](#)]
24. '*Electrical and structural characterization of defects introduced in p-SiGe during low energy erbium implanatation*',
M. Mamor, B. Pipeleers, F.D. Auret, J. Maes, M. Hayne, V.V. Moshchalkov and A. Vantomme,
Materials Science and Engineering B **105**, 179-183 (2003). [[Download](#)]
25. '*Quantum-mechanical spin states and Zeeman-level diagrams of the positively charged exciton*',
M. Hayne, T. Vanhoucke and V.V. Moshchalkov,
Physical Review B **68**, 035322 {8 pages} (2003). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **8**, Issue 5 (2003)]
26. '*Electron localization by self-assembled GaSb/GaAs quantum dots*',
M. Hayne, J. Maes, S. Bersier, V.V. Moshchalkov, A. Schliwa, L. Müller-Kirsch, C. Kapteyn, R. Heitz and D. Bimberg,
Applied Physics Letters **82**, 4355-4357 (2003). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **7**, Issue 25 (2003)]

27. 'Magneto-photoluminescence studies of the influence of substrate orientation on the growth of InAs/GaAs quantum dots'
J. Maes, M. Henini, M. Hayne, A. Patanè, F. Pulizzi, L. Eaves, P.C. Main and V.V. Moshchalkov,
Journal of Crystal Growth **251**, 186-191 (2003). [[Download](#)]
28. 'Raman scattering in cluster-deposited nanogranular silicon films',
M.J. Konstantinović, S. Bersier, X. Wang, M. Hayne, P. Lievens, R.E. Silverans and V.V. Moshchalkov,
Physical Review B **66**, 161311(R){4 pages}(2002). [[Download](#)]
29. 'Dependence of quantum-dot formation on substrate orientation studied by magneto-photoluminescence',
J. Maes, M. Hayne, V.V. Moshchalkov, A. Patanè, M. Henini, L. Eaves and P.C. Main,
Applied Physics Letters **81**, 1480-1482 (2002). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **6**, Issue 8 (2002)]
30. 'Magnetic-field dependence of the spin states of the negatively charged exciton in GaAs quantum wells',
T. Vanhouscke, M. Hayne, M. Henini and V.V. Moshchalkov,
Physical Review B **65**, 233305 {4 pages} (2002). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **5**, Issue 23 (2002)]
31. 'Charge confinement and uniformity of stacked InP quantum dots studied by magneto-optical spectroscopy',
J. Maes, M. Hayne, Y.M. Manz, O.G. Schmidt, K. Eberl and V.V. Moshchalkov,
Physica E **13**, 203-207 (2002). [[Download](#)]
32. 'Magnetophotoluminescence of positively-charged excitons in GaAs quantum wells',
M. Hayne, T. Vanhouscke, V.V. Moshchalkov and M. Henini,
Physica E **12**, 516-519 (2002). [[Download](#)]
33. 'High-field Zeeman contribution to the trion binding energy',
T. Vanhouscke, M. Hayne, M. Henini and V.V. Moshchalkov,
Physical Review B **65**, 041307(R) {4 pages} (2002). [[Download](#)]
34. 'Magneto-optical study of electron occupancy and hole wave functions in stacked self-assembled InP quantum dots',
M. Hayne, J. Maes, V.V. Moshchalkov, Y.M. Manz, O.G. Schmidt and K. Eberl,
Applied Physics Letters **79**, 45-47 (2001). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **4**, Issue 2 (2002)]
35. 'Magnetophotoluminescence of negatively charged excitons in narrow quantum wells',
T. Vanhouscke, M. Hayne, V.V. Moshchalkov and M. Henini,
Physical Review B **63**, 125331 {8 pages} (2001). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **3**, Issue 13 (2001)]
36. 'Electron and hole confinement in stacked self-assembled InP quantum dots of different sizes',
M. Hayne, J. Maes, Y.M. Manz, O.G. Schmidt, K. Eberl and V.V. Moshchalkov,
Physica Status Solidi (b) **224**, 31-35 (2001). [[Download](#)]
37. 'Experimental observation of the negatively charged exciton states in high magnetic fields',
T. Vanhouscke, M. Hayne, V.V. Moshchalkov and M. Henini,
Nanotechnology **11**, 281-285 (2000). [[Download](#)]
38. 'Electron and hole confinement in stacked self-assembled InP quantum dots',
M. Hayne, R. Provoost, M.K. Zundel, Y.M. Manz, K. Eberl and V.V. Moshchalkov,
Physical Review B **62**, 10324-10328 (2000). [[Download](#)]
[Selected for Virtual Journal of Nanoscale Science & Technology **2**, Issue 17 (2000)]
39. 'Energy levels of negatively charged excitons in high magnetic fields',
T. Vanhouscke, M. Hayne, V.V. Moshchalkov and M. Henini,
Solid State Communications **115**, 403-406 (2000). [[Download](#)]
40. 'Photoluminescence of stacked self-assembled InP quantum dots in high magnetic fields',
M. Hayne, R. Provoost, M.K. Zundel Y. Manz, K. Eberl and V.V. Moshchalkov,
Physica E **8**, 125-128 (2000). [[Download](#)]
41. 'Hole coupling in stacked self-assembled InP quantum dots',
M. Hayne, R. Provoost, M.K. Zundel Y. Manz, K. Eberl and V.V. Moshchalkov,
Physica E **6**, 436-439 (2000). [[Download](#)]