

I - PRODUITS DE LA RECHERCHE

1. Journaux revues

Nombre total : 104 pour la période 2014-2019.

- Les auteurs soulignés sont les membres permanents, ou non-permanents du groupe MEM du CEMES.
- 48 publications sont issues d'une collaboration internationale,
- 54 publications sont issues d'une collaboration nationale
- 34 publications sont communes avec d'autres groupes du CEMES, marquées par un astérisque (*)

Articles scientifiques

20% des publications jugées les plus significatives par année croissante

2014

1. Acosta-Alba P. E., Kononchuk O., Gourdel C., Claverie A. (2014). *Surface self-diffusion of silicon during high temperature annealing*. *Journal of Applied Physics*, 115(13):134903-333. doi: <https://doi.org/10.1063/1.4870476>
2. Arras R., Calmels L. (2014). *Fully spin-polarized two-dimensional electron gas at the CoFe₂O₄/ MgAl₂O₄ (001) polar interface*. *Physical Review B: Condensed matter and materials physics*, 90(4):045411. doi: <https://doi.org/10.1103/PhysRevB.90.045411>
3. Qiu Y., Cristiano F., Huet K., Mazzamuto F., Fiscaro G., La Magna A., Quillec M., Cherkashin N., Wang H., Duguay S., Blavette D. (2014). *Extended Defects Formation in Nanosecond Laser-Annealed Ion Implanted Silicon*. *Nano Letters*, 14(4): 1769-1775. doi: <https://doi.org/10.1021/nl4042438>

2015

4. Bohra M., Grammatikopoulos P., Diaz R. E., Singh V., Zhao J., Bobo J.-F., Kuronen A., Djurabekova F., Nordlund K., Sowwan M. (2015). *Surface segregation in chromium-doped NiCr alloy nanoparticles and its effect on their magnetic behavior*. *Chemistry of Materials*, 27(9):3216-3225. doi: <https://doi.org/10.1021/acs.chemmater.5b00837>
5. Cherkashin N., Darras F.-X., Pochet P., Reboh S., Ratel-Ramond N., Claverie A. (2015). *Modelling of point defect complex formation and its application to H⁺ ion implanted silicon*. *Acta Materialia*, 99:187-195. doi: <https://doi.org/10.1016/j.actamat.2015.07.078>
6. Mazet L., Yang S. M., Kalinin S., Schamm-Chardon S., Dubourdieu C. (2015). *A review of molecular beam epitaxy of ferroelectric BaTiO₃ films on Si, Ge and GaAs substrates and their applications*. *Science and Technology of Advanced Materials*, 16(3):036005. doi: <https://doi.org/10.1088/1468-6996/16/3/036005>

2016

7. Arras R., Ly Le T., Guillemet-Fritsch S., Dufour P., Tenailleau C. (2016). *First-principles electronic structure calculations for the whole spinel oxide solid solution range Mn_xCo_{3-x}O₄ (0 ≤ x ≤ 3) and their comparison with experimental data*. *Physical Chemistry Chemical Physics*, 18(37):26166-26176. doi: <https://doi.org/10.1039/c6cp05554k>
8. (*) Reyes Vasquez D. F., Biziere N., Warot-Fonrose B., Wade T., Gatel C. (2016). *Magnetic Configurations in Co/Cu Multilayered Nanowires: Evidence of Structural and Magnetic Interplay*. *Nano Letters*, 16:1230-1236. doi: <https://doi.org/10.1021/acs.nanolett.5b04553>
9. (*) Vlašín O., Jarrier R., Arras R., Calmels L., Warot-Fonrose B., Marcelot C., Jamet M., Ohresser P., Scheurer F., Hertel R., Herranz G., Cherifi-Hertel S. (2016). *Interface Magnetoelectric Coupling in Co/Pb(Zr,Ti)O₃*. *ACS Applied Materials & Interfaces*, 8(11):7553-7563. doi: <https://doi.org/10.1021/acsami.5b12777>

2017

10. (*) Abdallah I., Pradines B., Ratel-Ramond N., Benassayag G., Arras R., Calmels L., Bobo J.-F., Snoeck E., Biziere N. (2017). *Evolution of magnetic properties and damping coefficient of Co₂MnSi Heusler alloy with Mn/Si and Co/Mn atomic disorder*. *Journal of Physics D: Applied Physics*, 50(3):035003. doi: <https://doi.org/10.1088/1361-6463/50/3/035003>
11. Castro C., Benassayag G., Pécassou B., Andreozzi A., Seguini G., Perego M., Schamm-Chardon S. (2017). *Nanoscale control of Si nanoparticles within a 2D hexagonal array embedded in SiO₂ thin films*. *Nanotechnology*, 28(1). doi: <https://doi.org/10.1088/0957-4484/28/1/014001>
12. (*) Cherkashin N., Denneulin T., Hÿtch M. (2017). *Electron microscopy by specimen design: application to strain*

- measurements. *Scientific Reports*, 7(1):12394-12394. doi: <https://doi.org/10.1038/s41598-017-12695-8>
13. [Garandel T.](#), [Arras R.](#), Marie X., Renucci P., [Calmels L.](#) (2017). *Electronic structure of the Co(0001)/MoS₂ interface, and its possible use for electrical spin injection in a single MoS₂ layer.* *Physical Review B : Condensed matter and materials physics*, 95:075402. doi: <https://doi.org/10.1103/PhysRevB.95.075402>
 14. [Pradines B.](#), [Arras R.](#), [Abdallah I.](#), [Biziére N.](#), [Calmels L.](#) (2017). *First-principles calculation of the effects of partial alloy disorder on the static and dynamic magnetic properties of Co₂MnSi.* *Physical Review B: Condensed matter and materials physics*, 95(9): 094425. doi: <https://doi.org/10.1103/PhysRevB.95.094425>

2018

15. [Agati M.](#), Renaud F., Benoit D., [Claverie A.](#) (2018). *In-situ transmission electron microscopy studies of the crystallization of N-doped Ge-rich GeSbTe materials.* *MRS Communications*, 8(03):1145-1152. doi: <https://doi.org/10.1557/mrc.2018.168>
16. [Boureau V.](#), Benoit D., [Claverie A.](#) (2018). *Impact of Some Processing Steps onto the Strain Distributions in FD-SOI CMOS Planar Devices: A Contribution of Dark-Field Electron Holography.* *ECS Journal of Solid State Science and Technology*, 7 (9): 473-479. doi: <https://doi.org/10.1149/2.0161809jss>
17. [Cherkashin N.](#), [Daghbouj N.](#), Seine G., [Claverie A.](#) (2018). *Impact of He and H relative depth distributions on the result of sequential He⁺ and H⁺ ion implantation and annealing in silicon.* *Journal of Applied Physics*, 123(16):161556-161559. doi: <https://doi.org/10.1063/1.5012505>
18. Ledentsov N. N., Shchukin V. V., Shernyakov Y. Y., Kulagina M. M., Payusov A. A., Gordeev N. N., Maximov M. M., Zhukov A. A., Denneulin T., [Cherkashin N.](#) (2018). *Room-temperature yellow-orange (In,Ga,Al)P–GaP laser diodes grown on (n11) GaAs substrates.* *Optics Express*, 26(11):13985-13994. doi: <https://doi.org/10.1364/OE.26.013985>
19. Prudkovskiy V., Iacovella F., Katin K., Maslov M. M., [Cherkashin N.](#) (2018). *A bottom-up approach for controlled deformation of carbon nanotubes through blistering of supporting substrate surface.* *Nanotechnology*, 29(36):365304. doi: <https://doi.org/10.1088/1361-6528/aacc5d>

2019

20. Faure S., [Bobo J.-F.](#), Prost D., Isaac F., Carrey J. (2019). *Electromagnetic field intensity imaging by thermofluorescence in the visible range.* *Phys. Rev. Appl.*, 11(5): 054084. doi: <https://doi.org/10.1103/PhysRevApplied.11.054084>
21. (*) [Sinha-Roy R.](#), [Louiset A.](#), Benoit M., and [Calmels L.](#) (2019). *Electronic structure and conductivity of off-stoichiometric and Si-doped Ge₂Sb₂Te₅ crystals from multiple-scattering theory,* *Phys. Rev. B* 99(24), 245124. doi: <https://doi.org/10.1103/PhysRevB.99.245124>

Publications par année croissante (80% restants)

2014

22. [Andrieu S.](#), [Calmels L.](#), [Hauet T.](#), [Bonell F.](#), [Le Fèvre P.](#), [Bertran F.](#) (2014). *Spectroscopic and transport studies of Co_xFe_{1-x}/MgO(001) -based magnetic tunnel junctions.* *Physical Review B : Condensed matter and materials physics*, 90(21):214406-214406. doi: <https://doi.org/10.1103/PhysRevB.90.214406>
23. (*) [Andrieu S.](#), [Bonell F.](#), [Hauet T.](#), [Montaigne F.](#), [Calmels L.](#), [Snoeck E.](#), [Lefevre P.](#), [Bertran F.](#) (2014). *Magnetotransport in MgO-based magnetic tunnel junctions grown by molecular beam epitaxy (invited).* *Journal of Applied Physics*, 115(17):172610. doi: <https://doi.org/10.1063/1.4869824>
24. (*) [Bayle M.](#), [Benzo P.](#), [Combe N.](#), [Gatel C.](#), [Bonafos C.](#), [Benassayag G.](#), [Carles R.](#) (2014). *Experimental investigation of the vibrational density of states and electronic excitations in metallic nanocrystals.* *Physical Review B: Condensed matter and materials physics*, 89(19): 195402. doi: <https://doi.org/10.1103/PhysRevB.89.195402>
25. [Bohra M.](#), [Singh V.](#), [Sowwan M.](#), [Bobo J.-F.](#), [Chung C.-J.](#), [Clemens B.](#) (2014). *Influence of packaging on the surface oxidation and magnetic properties of cobalt nanocrystals.* *Journal of Physics D: Applied Physics*, 47(30): 305002. doi: <https://doi.org/10.1088/0022-3727/47/30/305002>
26. [Chouchane F.](#), [Almuneau G.](#), [Cherkashin N.](#), [Arnoult A.](#), [Lacoste G.](#), [Fontaine C.](#) (2014). *Local stress-induced effects on AlGaAs/AlO_x oxidation front shape.* *Applied Physics Letters*, 105(4):41909-41909. doi: <https://doi.org/10.1063/1.4892094>
27. [Clochard M.-C.](#), [El Jouad M.](#), [Biziére N.](#), [Do P.](#), [Drouhin H.-J.](#), [Balanzat E.](#), [Lairez D.](#), [Viret M.](#), [Wegrowe J.-E.](#) (2014). *Magnetic nanoconstrictions made from nickel electrodeposition in polymeric bi-conical tracks: Magnetotransport behavior.* *Radiation Physics and Chemistry*, 94:66. doi: <https://doi.org/10.1016/j.radphyschem.2013.06.016>
28. [Darras F.-X.](#), [Cherkashin N.](#), [Cristiano F.](#), [Scheid E.](#), [Kononchuk O.](#), [Capello L.](#), [Claverie A.](#) (2014). *Quantification of the number of Si interstitials formed by hydrogen implantation in silicon using boron marker layers.* *Nuclear*

Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms, 327(1):29-32. doi: <https://doi.org/10.1016/j.nimb.2013.09.045>

29. Grisolia J., Benassayag G., Diaz R., Duprat C., Guerin F., Capello C., Rouabhi C., Gessinn F., Respaud M. (2014). *Nanocrystals inside : fabrication de composants mémoires MOS à base de nanocristaux de silicium*. *Journal sur l'enseignement des sciences et technologies de l'information et des systèmes*, 13:0008. doi: <https://doi.org/10.1051/j3ea/2014008>
30. (*) Hÿtch M., Gatel C., Lubk A., Denneulin T., Durand L., Cherkashin N., Snoeck E. (2014). *Local strain measurements at dislocations, disclinations and domain boundaries*. *Microscopy and Microanalysis*, 20(3):1044-1045. doi: <https://doi.org/10.1017/S1431927614006941>
31. (*) Javon E., Lubk A., Cours R., Reboh S., Cherkashin N., Houdellier F., Gatel C., Hÿtch M. (2014). *Dynamical effects in strain measurements by dark-field electron holography*. *Ultramicroscopy*, 147:70-85. doi: <https://doi.org/10.1016/j.ultramic.2014.06.005>
32. Kopp V. S., Kaganer V. M., Baidakova M. V., Lundin W. V., Nikolaev A. E., Verkhovtceva E. V., Yagovkina M. A., Cherkashin N. (2014). *X-ray determination of threading dislocation densities in GaN/Al₂O₃(0001) films grown by metalorganic vapor phase epitaxy*. *Journal of Applied Physics*, 115(7):073507. doi: <https://doi.org/10.1063/1.4865502>
33. Laânab L., Belafhaili A., Cristiano F., Cherkashin N., Claverie A. (2014). *The effect of Ge content on the formation and evolution of 113 defects in SiGe alloys*. *physica status solidi (c)*, 11(1):20-23. doi: <https://doi.org/10.1002/pssc.201300177>
34. (*) Lubk A., Javon E., Cherkashin N., Reboh S., Gatel C., Hÿtch M. (2014). *Dynamic scattering theory for dark-field electron holography of 3D strain fields*. *Ultramicroscopy*, 136:42-49. doi: <https://doi.org/10.1016/j.ultramic.2013.07.007>
35. Lundin W. V., Nikolaev A. E., Sakharov A., Usov S., Zavarin E., Brunkov P., Yagovkina M. A., Cherkashin N., Tsatsulnikov A. (2014). *Dependence of the efficiency of III-N blue LEDs on the structural perfection of GaN epitaxial buffer layers*. *Semiconductors*, 48(1):53-57. doi: <https://doi.org/10.1134/S1063782614010199>
36. Mazet L., Bachelet R., Louahadj L., Albertini D., Gautier B., Cours R., Schamm-Chardon S., Saint-Girons G., Dubourdieu C. (2014). *Structural study and ferroelectricity of epitaxial BaTiO₃ films on silicon grown by molecular beam epitaxy*. *Journal of Applied Physics*, 116(21):214102. doi: <https://doi.org/10.1063/1.4902165>
37. Misevic G. N., Benassayag G., Rasser B., Salles P., Simic-Krstic J., Misevic N. J., Popescu O. (2014). *Design and construction of wall-less nano-electrophoretic and nano in micro array high throughput devices for single cell 'omics' single molecule detection analyses*. *Journal of Molecular Structure*, 1073(C):142-149. doi: <https://doi.org/10.1016/j.molstruc.2014.05.011>
38. Perego M., Andreozzi A., Seguíni G., Schamm-Chardon S., Castro C., Benassayag G. (2014). *Silicon crystallization in nanodot arrays organized by block copolymer lithography*. *Journal of Nanoparticle Research*, 16(12). doi: <https://doi.org/10.1007/s11051-014-2775-6>
39. Pham D.-C., Biziere N., Melilli G., Pajon R., Lacour D., Bouvot L., Tabellout M., Lairez D., Drouhin H.-J., Clochard M.-C., Wegrowe J.-E. (2014). *Strain-induced inverse magnetostriction measured on a single contacted Ni nanowire in a polymer matrix*. *Materials Research Express*, 1(4): 045017. doi: <https://doi.org/10.1088/2053-1591/1/4/045017>
40. Renard C., Cherkashin N., Jaffré A., Molière T., Hallais G., Vincent L., Alvarez J., Mencaraglia D., Michel A., Bouchier D. (2014). *Growth of high quality micrometer scale GaAs/Si crystals from (001) Si nano-areas in SiO₂*. *Journal of Crystal Growth*, 401:554-558. doi: <https://doi.org/10.1016/j.jcrysgro.2014.01.065>
41. Vernières J., Benelmekki M., Kim J.-H., Grammatikopoulos P., Bobo J.-F., Diaz R. E., Sowwan M. (2014). *Single-step gas phase synthesis of stable iron aluminide nanoparticles with soft magnetic properties*. *APL Materials*, 2(11). doi: <https://doi.org/10.1063/1.4901345>
42. (*) Yaacoub L., Schamm-Chardon S., Ovsyuk N., Zwick A., Groenen J. (2014). *Raman-Brillouin scattering from a thin Ge layer: Acoustic phonons for probing Ge/GeO₂ interfaces*. *Applied Physics Letters*, 104(6):061601. doi: <https://doi.org/10.1063/1.4864790>

2015

43. (*) Bayle M., Bonafos C., Benzo P., Benassayag G., Pécassou B., Khomenkova L., Gourbilleau F., Carles R. (2015). *Ag doped silicon nitride nanocomposites for embedded plasmonics*. *Applied Physics Letters*, 107(10). doi: <https://doi.org/10.1063/1.4930940>
44. (*) Bayle M., Grisolia J., Benassayag G., Pécassou B., Bonafos C., Benzo P., Gourbilleau F., Carles R. (2015). *Electron transport through a metallic nanoparticle assembly embedded in SiO₂ and SiN_x by low energy ion implantation*. *physica status solidi (c)*. doi: <https://doi.org/10.1002/pssc.201510147>

45. Beltrán A. M., Duguay S., Strenger C., Bauer A. J., Cristiano F., Schamm-Chardon S. (2015). *Atomic scale characterization of SiO₂/4H-SiC interfaces in MOSFETs devices*. *Solid State Communications*, 221:28-32. doi: <https://doi.org/10.1016/j.ssc.2015.08.017>
46. (*) Carles R., Bayle M., Benzo P., Benassayag G., Bonafos C., Cacciato G., Privitera V. (2015). *Plasmon-resonant Raman spectroscopy in metallic nanoparticles: Surface-enhanced scattering by electronic excitations*. *Physical Review B : Condensed matter and materials physics*, 92(17):174302-174302. doi: <https://doi.org/10.1103/PhysRevB.92.174302>
47. (*) Castiella M., Gatel C., Bobo J.-F., Ratel-Ramond N., Tan R., Respaud M., Casanove M.-J. (2015). *Structural investigation of magnetic FeRh epitaxial films*. *Materials Research Express*, 2(8):086401. doi: <https://doi.org/10.1088/2053-1591/2/8/086401>
48. Cherkashin N., Daghbouj N., Darras F.-X., Fnaiech M., Claverie A. (2015). *Cracks and blisters formed close to a silicon wafer surface by He-H co-implantation at low energy*. *Journal of Applied Physics*, 118(24):245301-135308. doi: <https://doi.org/10.1063/1.4938108>
49. (*) Fu X., Warot-Fonrose B., Arras R., Demaille D., Eddrief M., Etgens V., Serin V. (2015). *Energy-loss magnetic chiral dichroism study of epitaxial MnAs film on GaAs(001)*. *Applied Physics Letters*, 107(6):062402. doi: <https://doi.org/10.1063/1.4928542>
50. Martinez E., Saidi B., Veillerot M., Caubet P., Fabbri J.-M., Piallat F., Gassilloud R., Schamm-Chardon S. (2015). *Backside versus frontside advanced chemical analysis of high-k/metal gate stacks*. *Journal of Electron Spectroscopy and Related Phenomena*, 203:1-7. doi: <https://doi.org/10.1016/j.elspec.2015.04.022>
51. (*) Marín L., Rodríguez L. A., Magén C., Snoeck E., Arras R., Lucas I., Morellón L., Algarabel P. A., De Teresa J. M., Ibarra M. R. (2015). *Observation of the strain induced magnetic phase segregation in manganite thin films*. *Nano Letters*, 15(1):492-497. doi: <https://doi.org/10.1021/nl503834b>
52. Gomez-Selles J. L., Claverie A., Sklenard B., Benistant F., Martin-Bragado I. (2015). *Atomistic simulation of damage accumulation and amorphization in Ge*. *Journal of Applied Physics*, 117(5):55703-55703. doi: <https://doi.org/10.1063/1.4907211>
53. Mitrovic I., Hall S., Althobaiti M., Hesp D., Dhanak V., Santoni A., Weerakkody A., Sedghi N., Chalker P., Henkel C., Dentoni Litta E., Hellström P.-E., Östling M., Tan H., Schamm-Chardon S. (2015). *Atomic-layer deposited thulium oxide as a passivation layer on germanium*. *Journal of Applied Physics*, 117(21):214104. doi: <https://doi.org/10.1063/1.4922121>
54. Nikolaou N., Ioannou-Sougleridis V., Dimitrakis P., Normand P., Skarlatos D., Giannakopoulos K., Ladas S., Pécassou B., Benassayag G., Kukli K., Niinistö J., Ritala M., Leskelä M. (2015). *Nitrogen induced modifications of MANOS memory properties*. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, 365:61-65. doi: <https://doi.org/10.1016/j.nimb.2015.04.015>
55. Simatos D., Dimitrakis P., Normand P., Nikolaou N., Giannakopoulos K., Ladas S., Pécassou B., Benassayag G., Ioannou-Sougleridis V. (2015). *Temperature dependent retention characteristics of ion-beam modified SONOS memories*. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, 365:66-69. doi: <https://doi.org/10.1016/j.nimb.2015.04.007>
56. Tsatsulnikov A. F., Lundin W. V., Sakharov A. V., Zavarin E., Usov S., Nikolaev A. E., Sinitsyn M., Cherkashin N., Karpov S. Y. (2015). *Effect of the design of the active region of monolithic multi-color LED heterostructures on their spectra and emission efficiency*. *Semiconductors*, 49(11):1516-1521. doi: <https://doi.org/10.1134/S1063782615110238>
57. (*) Tsatsulnikov A. F., Lundin W. V., Sakharov A. V., Nikolaev A. E., Zavarin E., Usov S., Yagovkina M. A., Hÿtch M., Korytov M., Cherkashin N. (2015). *Formation of three-dimensional islands in the active region of InGaN based light emitting diodes using a growth interruption approach*. *Science of advanced materials*, 7(8):1629-1635. doi: <https://doi.org/10.1166/sam.2015.2277>
58. (*) Yaacoub L., Schamm-Chardon S., Ovsyuk N., Zwick A., Groenen J. (2015). *Studying Thin Ge films and Ge/GeO₂ interfaces by means of raman-brillouin scattering*. *Bulletin of the Russian Academy of Sciences: Physics*, 79(11):1397-1401. doi: <https://doi.org/10.3103/S1062873815110246>

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59. (*) Abdallah I., Ratel-Ramond N., Magen C., Pécassou B., Cours R., Arnoult A., Respaud M., Bobo J.-F., Benassayag G., Snoeck E., Biziere N. (2016). *Structural and magnetic properties of He⁺ irradiated Co₂MnSi Heusler alloys*. *Materials Research Express*, 3(4):046101. doi: <https://doi.org/10.1088/2053-1591/3/4/046101>
60. Bohra M., Singh V., Grammatikopoulos P., Toulkeridou E., Diaz R. E., Bobo J.-F., Sowwan M. (2016). *Control of Surface Segregation in Bimetallic NiCr Nanoalloys Immersed in Ag Matrix*. *Scientific Reports*, 6: 19153. doi: <https://doi.org/10.1038/srep19153>
61. Bonnevalle A., Reboh S., Le Royer C., Morand Y., Hartmann J.-M., Rouchon D., Pedini J.-M., Tabone C., Rambal N.,

- Payet A., Plantier C., Boeuf F., Haond M., Claverie A., Vinet M. (2016). *On the use of a localized STRASS technique to obtain highly tensile strained Si regions in advanced FDSOI CMOS devices*. *Physica Status Solidi (C) Current Topics in Solid State Physics*, 13(10-12):740-745.
doi: <https://doi.org/10.1002/pssc.201600028>
62. (*) Boureau V., Benoit D., Warot-Fonrose B., Hÿtch M., Claverie A. (2016). *Strain/composition interplay in thin SiGe layers on insulator processed by Ge condensation*. *Materials Science in Semiconductor Processing*, 42:251-254. doi: <https://doi.org/10.1016/j.mssp.2015.07.034>
63. Cherkashin N., Darras F.-X., Claverie A. (2016). *Determination of the free Gibbs energy of plate-like precipitates of hydrogen molecules and silicon vacancies formed after H⁺ ion implantation into silicon and annealing*. *Solid State Phenomena*, 242:190-195.
doi: <https://doi.org/10.4028/www.scientific.net/SSP.242.190>
64. Claverie A., Cherkashin N. (2016). *On the origin of dislocation loops in irradiated materials: A point of view from silicon*. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, 374:82-89. doi: <https://doi.org/10.1016/j.nimb.2015.09.011>
65. (*) Daghbouj N., Cherkashin N., Darras F.-X., Paillard V., Fnaiech M., Claverie A. (2016). *Effect of the order of He⁺ and H⁺ ion co-implantation on damage generation and thermal evolution of complexes, platelets, and blisters in silicon*. *Journal of Applied Physics*, 119(13):135308-245301.
doi: <https://doi.org/10.1063/1.4945032>
66. (*) Fu X., Warot-Fonrose B., Arras R., Seine G., Demaille D., Eddrief M., Etagens V., Serin V. (2016). *In situ observation of ferromagnetic order breaking in MnAs/GaAs(001) and magnetocrystalline anisotropy of α -MnAs by electron magnetic chiral dichroism*. *Physical Review B : Condensed matter and materials physics*, 93(10):104410. doi: <https://doi.org/10.1103/PhysRevB.93.104410>
67. (*) Fu X., Warot-Fonrose B., Arras R., Dumesnil K., Serin V. (2016). *Quantitative moment study and coupling of 4 f rare earth and 3 d metal by transmitted electrons*. *Physical Review B : Condensed matter and materials physics*, 94(14):140416. doi: <https://doi.org/10.1103/PhysRevB.94.140416>
68. Han B., Shimizu Y., Seguini G., Arduca E., Castro C., Benassayag G., Inoue K., Nagai Y., Schamm-Chardon S., Perego M. (2016). *Evolution of shape, size, and areal density of a single plane of Si nanocrystals embedded in SiO₂ matrix studied by atom probe tomography*. *RSC Advances*, 6(5):3617-3622.
doi: <https://doi.org/10.1039/c5ra26710b>
69. Karpov S., Cherkashin N., Lundin W. V., Nikolaev A. E., Sakharov A. V., Sinitin M., Usov S., Zavarin E., Tsatsulnikov A. F. (2016). *Multi-color monolithic III-nitride light-emitting diodes: Factors controlling emission spectra and efficiency*. *Physica Status Solidi (A) Applications and Materials Science*, 213(1):19-29. doi: <https://doi.org/10.1002/pssa.201532491>
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2. Ouvrages

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1. Dewolf T. *Nano-caractérisation des mécanismes de commutation dans les mémoires résistives à base de HfO₂*. Dir: S. Schamm-Chardon et G. Audoit (CEA-Leti). Université de Toulouse III - Paul Sabatier, 2018. <http://thesesups.ups-tlse.fr/4134/>
2. Haj Salem A. *Synthèse ionique à très basse énergie de bicouches de nanocristaux de Si et d'Ag pour la conversion de fréquence dans les dispositifs photovoltaïques*. Dir : M. Carrada et G. BenAssayag. Université de Toulouse III - Paul Sabatier, 2018. NNT : [2018TOU30045](https://tel.archives-ouvertes.fr/tel-2018TOU30045)

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3. Garandel T. *Structure électronique des interfaces Co(OO)/MoS₂ et Ni(III)/WSe₂ pour l'injection de spin dans un semi-conducteur bidimensionnel*. Dir : L. Calmels et P. Renucci. INSA de Toulouse, 2017. NNT: [2017ISAT0030](https://tel.archives-ouvertes.fr/tel-2017ISAT0030)
4. Pradines B. *Structure électronique et propriétés magnétiques statiques et dynamiques d'alliages d'Heusler partiellement désordonnés et d'hétérostructures tout-Heusler*. Dir : L. Calmels et R. Arras. Université Toulouse 3 Paul Sabatier, 2017. <https://dumas.ccsd.cnrs.fr/CEMES-TEL/tel-01666719v1>
5. Berthelon R. *Intégration de contraintes mécaniques et optimisation des performances des transistors MOS complètement désertés sur isolant (FDSOI) pour les nœuds 10 nm et en-deça*. Dir : A. Claverie. Thèse Cifre

STMicroelectronics. Université Paul Sabatier – Toulouse III, 2017.

6. Royal A. *Etude du piégeage de l'hydrogène implanté et application au transfert de couches fines de silicium*, Dir.: A. Claverie (CEMES) et F. Mazen (Léti), Toulouse III, 2017.

2016

7. Abdallah I. *Spin dynamics and structural modifications of Co_2MnSi Heusler alloys by Helium ions irradiation*. Dir : N. Bizière et E. Snoeck. Université Paul Sabatier - Toulouse III, 2016. NNT: [2016TOU30079](#)
8. Boureau V. *Déformations introduites lors de la fabrication de transistors FDSOI : une contribution de l'holographie électronique en champ sombre*. Dir : A. Claverie et D. Benoit (STMicroelectronics). Université de Toulouse III - Paul Sabatier, 2016. NNT: [2016TOU30084](#)
9. Bonnevialle A. *Intégration de canaux contraints pour les technologies CMOS FDSOI 10 nm*. Dir. A. Claverie. Thèse Cifre STMicroelectronics. Université Paul Sabatier - Toulouse III, 2016.
10. Daghbouj N. *Implantation ionique d'hydrogène et d'hélium à basse énergie dans le silicium monocristallin*. Dir : N. Cherkashin. Université Paul Sabatier - Toulouse III, 2016. NNT: [2016TOU30018](#)
11. Mazet L. *Epitaxie par jets moléculaires de l'oxyde BaTiO_3 sur Si et $\text{Si}_{1-x}\text{Ge}_x$: étude de la croissance, des propriétés structurales ou physico-chimiques et de la ferroélectricité – applications à des dispositifs à effet de champ*. Dir : S. Schamm-Chardon et C. Dubourdieu (INL Lyon). Université de Lyon, 2016. NNT: [2016LYSEC021](#)

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12. Darras F.-X. *Précipitation et contrainte dans le silicium implanté par hydrogène*. Dir : N. Cherkashin et A. Claverie. Université Paul Sabatier - Toulouse III, 2015. NNT: [2015TOU30097](#)

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13. Yaacoub L. *Nano-sondes Raman-Brillouin intégrées : étude d'oxydes ultra-fins*. Dir : J. Groenen et S. Schamm-Chardon. Université Paul Sabatier (Toulouse 3), 2014. NNT: [2014TOU30105](#)
14. Saidi B. *Procédés de base pour la grille Damascène du CMOS 20-22nm*. Dir : S. Schamm-Chardon et R. Gassilloud (CEA-Leti). Thèse Cifre STMicroelectronics. Université Paul Sabatier - Toulouse III, 2014. NNT: [2014TOU30300](#)
15. Accosta Alba P. *Mesure et impact des procédés technologiques sur l'uniformité des couches « Si top » dans les plaques « Ultra Thin SOI*. Dir : A. Claverie. Thèse Cifre Soitec. Université Paul Sabatier – Toulouse III. 2014.
16. Belahaifi A. *Influence de la concentration en Ge sur la densité et l'évolution thermique des défauts d'implantation dans les alliages SiGe*. Dir. L. Laanab et A. Claverie. Thèse financée par PAI Volubilis. Université de Rabat, 2014.

3. Production dans des Colloques/congrès, séminaires de recherche

1. Garandel T., Arras R., Marie X., Renucci P., Calmels L. (2017). *First principles investigation of the $\text{Co}(0001)/\text{MoS}_2$ and $\text{Ni}(111)/\text{WSe}_2$ interfaces for spin injection in a transition metal dichalcogenide monolayer*. *Proc. of SPIE*, 10357:103570P. doi: <https://doi.org/10.1117/12.2275135>
2. Pradines B., Arras R., Calmels L. (2017). *An ab initio study of the effects of vacancies on the static and dynamic magnetic properties of Co_2MnSi* . *Journal of Physics: Conference Series*, 903:012030. doi: <https://doi.org/10.1088/1742-6596/903/1/012030>
3. Dewolf T., Cooper D., Grenier A., Grampeix H., Charpin C., Jalaguié E., Audoit G. and Schamm-Chardon S. (2017). *Investigation of switching mechanism in HfO_2 -based oxide resistive memories by in-situ Transmission Electron Microscopy (TEM) and Electron Energy Loss Spectroscopy (EELS)*. *Proceedings of the 43rd ISTFA, 43rd International Symposium for Testing and Failure Analysis (ISTFA) – ASM International*, 371-374.

4. Contrats de recherche financés par des institutions publiques ou caritatives

- Projet EU FP7 NEWLED « Nanostructured Efficient White LEDs based on short-period superlattices and quantum dots ». 2012-2016, resp. scient. N. Cherkashin, budget CEMES 540 k€
- Projet ANR NASSICS 12-JS10-00801 « Nano-structuration pour la dynamique de spin ». 2012-2014. Resp. Scient. N. Bizière. Budget CEMES 239 k€

- Projet ANR Multisolsi « MULTI spectral SOLar cells based on Silicon ». 2012-2016. Resp. scient. N. Cherkashin. Budget CEMES 280 k€
- Projet ANR INTENSE « Integration of complex ferroelectric epitaxial oxides on planar and nanowire semiconducting platforms: engineering of nanoscale ferroelectric domains ». 2014-2016. Resp. scient. S. Schamm-Chardon. Budget CEMES 130 k€
- Mission Interdisciplinarité CNRS / DEFINSTRUM (défi instrumentation aux limites) ICET “imagerie de champ électromagnétique par thermofluorescence”. 2018. Resp. Scient. J. Bobo. Budget CEMES 23 k€
- Projet Région MP/COMUE, financement thèse Thomas Garandel (2014-2017)
- Projet LABEX-NEXT HEUMAC « HEUsler based MAGnonic Crystals». 2015-2017. Resp. Scient. N. Bizière. Budget CEMES 40 k€
- Projet LABEX-NEXT IVIBECA « Infrared and visible imaging of magnetic losses for biomedical, electromagnetic and catalysis applications » - 2015-2017 - Resp. Scient. J. Bobo - Budget CEMES 26 k€
- Projet LABEX-NEXT ASCO-PCM « Alliages GST riches en Ge : lien entre structure atomique et conductivité électrique ». 2017-2019. Resp. Scient. L. Calmels. Budget CEMES 146 k€
- Projet LABEX-NEXT RASTASCO « Rashba states and spin charge current conversion in metallic spintronic devices ». 2018 – 2020 - Resp. Scient. L. Calmels. Budget CEMES 40 k€
- Projet LABEX-NEXT ELESIS « ELectronic structure and Electrical Spin Injection in ferromagnetic » - 2015-2018 - Resp. Scient. L. Calmels - Budget CEMES 32 k€
- Projet LABEX-NEXT OptiHelice « Détection de optique et électrique du spin des défauts paramagnétiques dans les semi-conducteurs à base de GaAs: vers un photo-détecteur électriques de l'hélicité ded photons». 2016-2019. Resp. Scient. G. BenAssayag. Budget CEMES 170 k€

5. Brevets, licences et déclarations d'invention

- S. Faure, J.F. Bobo, J. Carrey, F. Issac and D. Prost, *Composant sensible pour dispositif de mesure de champ électromagnétique par thermofluorescence, procédés de mesure et de fabrication correspondants*, French Patent, n° 1758907, 2017.

6. Interactions avec les acteurs socio-économiques

- Contrats de R&D avec des industriels : 4

- Contrat nano2017 - 2015/2018 – Resp.Scient. A. Claverie – Budget 280 k€
- Contrats SOITEC - 2018/2021 – Resp.Scient. N. Cherkashin, Schamm-Chardon – Budget 150 k€
- Contrats SOITEC - 2018/2021 – Resp.Scient. A. Claverie, N. Cherkashin – Budget 160 k€
- Contrat STMicroelectronics (Projet IPCEI) - 2019/2024 - Resp.Scient. A. Claverie – Budget 480 k€

- Création d'entreprises, de start-up

- A. Claverie : Fondateur SASU Caramat (2016-), Conseil Technique « Matériaux, Procédés, Carac & CND) »