

**Publications of Marcel Toulemonde, 2021 January.**

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**Section 7, [page 34](#):** Patents (patents, from 1987 to1999)

## Theme 1: Nanometric transformation of materials by swift heavy ions in matter

### A) Insulators

#### 2021

*Ion tracks in silicon formed by much lower energy deposition than the track formation threshold*, H. Amekura, M. Toulemonde, K. Narumi, R. Li, A. Chiba, Y. Hirano, K. Yamada, S. Yamamoto, N. Ishikawa, N. Okubo, and Y. Saitoh, to be published in Sci. Rep.

*Structural modifications of boron carbide irradiated by swift heavy ions*, Y. Pipon, G. Victor, N. Moncoffre, G. Gutierrez, S. Miro, T. Douillard, O. Rapaud, N. Pradeilles, P. Sainsot, N. Toulhoat and M. Toulemonde to be published in Nucl. Mat.

*Nanoparticle emission by electronic sputtering of CaF<sub>2</sub> single crystals*, I. Alencar, M. Hatori, G.G. Marmitt, H. Trombini, P.L. Grande, J.F. Dias, R.M. Papaleo, A. Mucklich, W. Assmann, M. Toulemonde, C. Trautmann, Appl. Surf. Sci. 537(2021)127821

#### 2020

*Sputtering of LiF and other halide crystals in the electronic energy loss regime*, Marcel Toulemonde, Walter Assmann, Brigitte Ban-d'Etat, Markus Bender, Andreas Bergmaier, Philippe Boduch, Serge Della Negra, Jinglai Duan, Aymann S. El-Said, Florian Gruber, Jie Liu, Daniel Lelièvre, Hermann Rothard, Tim Seidl, Daniel Severin, Jean Paul Stoquert, Kay-Obe Voss, and Christina Trautmann, Eur. Phys. D 74(2020)144

#### 2019

*Effects of irradiation temperature on the response of CeO<sub>2</sub>, ThO<sub>2</sub>, and UO<sub>2</sub> to highly ionizing radiation*, William F. Cureton, Raul I. Palomares, Cameron L. Tracy, Eric C. O'Quinn, Jeffrey Walters, Maxim Zdorovets, Rodney C. Ewing, Marcel Toulemonde, Maik Lang, Nucl. Mat. 525(2019)83

*Measurement of local temperature around the impact points of fast ions under grazing incidence*, H. Kokabu, S. Yoon, H. Lee, K. Nakajima, M. Matsuda, M. Sataka, M. Tsujimoto, M. Toulemonde, K. Kimura, Nucl. Instr. Meth. B460(2019)94

#### 2018

*Damage induced in garnets by heavy ion irradiations: a study by optical spectroscopies*, J. M. Costantini, S. Miro, G. Lelong, M. Guillaumet and M. Toulemonde Phil. Mag. 98 (2018) 312

#### 2017

*Charge-state related effects in sputtering of LiF by swift heavy ions*, W. Assmann, B. Ban-d'Etat, M. Bender, P. Boduch, P.L. Grande, H. Lebius, D. Lelièvre, G.G. Marmitt, H. Rothard, T. Seidl, D. Severin, K.-O. Voss, M. Toulemonde, C. Trautmann Nucl. Instr. Meth. B 392 (2017) 94

*Raman spectroscopy study of damage induced in cerium dioxide by swift heavy ion irradiations*, Jean-Marc Costantini, Sandrine Miro, Gaëlle Gutierrez, Kazuhiro Yasuda, Seiya Takaki, Norito Ishikawa, and Marcel Toulemonde, J. Appl. Phys. 122(2017)205901

*Local heating induced by single MeV C<sub>60</sub> ion impacts*, H. Hayashi, S. Matsuzaki, K. Nakajima, K. Narumi, Y. Saitoh, M. Tsujimoto, M. Toulemonde, K. Kimura Nucl. Instr. Meth. B 406 (2017) 591.

*Temperature of thermal spikes induced by swift heavy ions*, S. Matsuzaki, H. Hayashi, K. Nakajima, M. Matsuda, M. Sataka, M. Tsujimoto, M. Toulemonde, K. Kimura Nucl. Instr. Meth. B 406 (2017) 456

*Electronic sputtering of LiF, CaF<sub>2</sub>, LaF<sub>3</sub> and UF<sub>4</sub> with 197 MeV Au ions. Is the stoichiometry of atom emission preserved?* M. Toulemonde, W. Assmann, D. Muller, C. Trautmann Nucl. Instr. Meth. B 406(2017) 501

#### 2016

*Data consistencies of swift heavy ion induced damage creation in yttrium iron garnet analyzed by different techniques*, A. Meftah, H. Benhacine, A. Benyagoub, J.J. Grob, M. Izerrouken, S. Kadid, N. Khalfaoui, J.P. Stoquert, M. Toulemonde, C. Trautmann Nucl. Instr. Meth. B 366 (2016) 155

*Understanding and simulating the material behavior during multi-particle irradiations*, Anamul H. Mir, M. Toulemonde, C. Jegou, S. Miro, Y. Serruys, S. Bouffard and S. Peugot Sci. Rep. 6 (2016) 30191

*Mono and sequential ion irradiation induced damage formation and damage recovery in oxide glasses: Stopping power dependence of the mechanical properties*, A.H. Mir, I. Monnet, M. Toulemonde, S. Bouffard, C. Jegou, S. Peugot J Nucl. Mater. 469 (2016) 244

*Electronic sputtering of vitreous SiO<sub>2</sub>: Experimental and modeling results*, M. Toulemonde, W. Assmann, C. Trautmann Nucl. Instr. Meth. B 379 (2016) 2

## 2015

*Swift heavy ion-beam induced amorphization and recrystallization of yttrium iron garnet* J.M. Costantini, S. Miro, F. Beuneu, M. Toulemonde, J. of Phys. Condens. Matter. 27(2015)96001

*Defect recovery and damage reduction in borosilicate glasses under double ion beam irradiation*, A. H. Mir, S. Peugot, M. Toulemonde, P. Bulot, C. Jegou, S. Miro and S. Bouffard, EPL 112(2015)36002

*C60 and U ion irradiation of Gd<sub>2</sub>Ti<sub>x</sub>Zr<sub>2-x</sub>O<sub>7</sub> pyrochlore*, J. Zhang, M. Toulemonde, M. Lang, J.M. Costantini, S. Della-Negra and R.C. Ewing J. Mat. Res. 30 (2015) 2456

*Sputtering of amorphous silicon nitride irradiated with energetic C60 ions: Preferential sputtering and synergy effect between electronic and collisional sputtering*, T. Kitayama, Y. Morita, K. Nakajima, K. Narumi, Y. Saitoh, M. Matsuda, M. Sataka, M. Toulemonde, K. Kimura, Nucl. Instr. Meth. B 356-357(2015)22

*Evaluation of local temperature around the impact points of fast ions*, H. Hayashi, T. Kitayama, S. Matsuzaki, K. Nakajima, K. Narumi, Y. Saitoh, M. Tsujimoto, M. Toulemonde, K. Kimura Nucl. Instr. Meth. B 365 (2015) 569.

*Sputtering of amorphous silicon nitride irradiated with energetic C60 ions: Preferential sputtering and synergy effect between electronic and collisional sputtering* T. Kitayama, Y. Morita, K. Nakajima, K. Narumi, Y. Saitoh, M. Matsuda, M. Sataka, M. Toulemonde, K. Kimura, Nucl. Instr. Meth. B365 (2015) 490

*Tracing temperature in a nanometer size region in a picosecond time period*, Kaoru Nakajima, Takumi Kitayama, Hiroaki Hayashi, Makoto Matsuda, Masao Sataka, Masahiko Tsujimoto, Marcel Toulemonde, Serge Bouffard, Kenji Kimura Sci Rep 5(2015)13363

*Additive effects of electronic and nuclear energy losses in irradiation-induced amorphization of zircon*, Eva Zarkadoula, Marcel Toulemonde, and William J. Weber Appl. Phys. Lett. 107(2015)261902

## 2014

*Energy deposition by heavy ions: Additivity of kinetic and potential energy contributions in hillock formation on CaF<sub>2</sub>*, Y. Y. Wang, C. Grygiel, C. Dufour, J. R. Sun, Z. G. Wang, Y. T. Zhao, G. Q. Xiao, R. Cheng, X. M. Zhou, J. R. Ren, S. D. Liu, Y. Lei, Y. B. Sun, R. Ritter, E. Gruber, A. Cassimi, I. Monnet, S. Bouffard, F. Aumayr and M. Toulemonde Sci. Rep. 4 (2014) 5742

*Swift heavy ion track formation in Gd<sub>2</sub>Zr<sub>2-x</sub>Ti<sub>x</sub>O<sub>7</sub> pyrochlore: Effect of electronic energy loss*, Maik Lang, Marcel Toulemonde, Jiaming Zhang, Fuxiang Zhang, Cameron L. Tracy, Jie Lian, Zhongwu Wang, William J. Weber, Daniel Severin, Markus Bender, Christina Trautmann, Rodney C. Ewing, Nucl. Instr. Meth. B 226 (2014) 102.

*Material transformation: Interaction between nuclear and electronic energy losses*, M. Toulemonde, W. Assmann, Y. Zhang, M. Backmand, W.J. Weber, C. Dufour, Z.G. Wang, Proc Mat Sci 7 (2014) 272

## 2013

*Reply to "Comment on 'Dense and nanometric electronic excitations induced by swift heavy ions in an ionic CaF<sub>2</sub> crystal: Evidence for two thresholds of damage creation*, M. Toulemonde, A. Benyagoub, C. Trautmann, N. Khalfaoui, M. Boccanfuso, C. Dufour, F. Gourbilleau, J. J. Grob, J. P. Stoquert, J. M. Costantini, F. Haas, E. Jacquet, K.-O. Voss, and A. Meftah. *Phys. Rev. B* 87 (2013) 056102

*SAXS investigations of the morphology of swift heavy ion tracks in  $\alpha$ -quartz*, B Afra, M D Rodriguez, C Trautmann, O H Pakarinen, F Djurabekova, K Nordlund, T Bierschenk, R Giulian, M C Ridgway, G Rizza, N Kirby, M Toulemonde and P Kluth, *J. Phys.: Condens. Matter* 25 (2013) 045006

*Radiation effects in nuclear materials: Role of nuclear and electronic energy losses and their synergy*, Lionel Thomé, A. Debelle, F. Garrido, S. Mylonas, B. Décamps, C. Bachelet, G. Sattonnay, S. Mol, S. Pellegrino, S. Miro, P. Trocellier, Y. Serruys, G. Velisa, C. Grygiel, I. Monnet, M. Toulemonde, P. Simon, J. Jagielski, I. Jozwik-Biala, L. Nowicki, M. Behar, W.J. Weber, Y. Zhang, M. Backman, K. Nordlund, F. Djurabekova *Nucl. Instr. Meth. B* 307 (2013) 43.

## 2012

*Damage creation threshold of Al<sub>2</sub>O<sub>3</sub> under swift heavy ion irradiation*, N. Khalfaoui, J.P. Stoquert, F. Haas, C. Trautmann, A. Meftah, M. Toulemonde, *Nucl. Instr. Meth. B* 286 (2012) 247

*Combined experimental and computational study of the recrystallization process induced by electronic interactions of swift heavy ions with silicon carbide crystals*, A. Debelle, M. Backman, L. Thomé, W. J. Weber, M. Toulemonde, S. Mylonas, A. Bouille, O. H. Pakarinen, N. Juslin, F. Djurabekova, K. Nordlund, F. Garrido, and D. Chaussende, *Phys. Rev.* 86 (2012) 100102(R)

*Amorphization of nanocrystalline monoclinic ZrO<sub>2</sub> by swift heavy ion irradiation*, F. Lu, J. Wang, M. Lang, M. Toulemonde, F. Namavar, C. Trautmann, J. Zhang, R. C. Ewing and J. Lian, *Phys. Chem. Chem. Phys.* 14 (2012) 12295

*Track formation in two amorphous insulators, vitreous silica and diamond like carbon: Experimental observations and description by the inelastic thermal spike model*, C. Rotaru, F. Pawlak, N. Khalfaoui, C. Dufour, J. Perrière, A. Laurent, J.P. Stoquert, H. Lebius, M. Toulemonde, *Nucl. Instr. Meth. B* 272 (2012) 9

*Nanometric transformation of the matter by short and intense electronic excitation: Experimental data versus inelastic thermal spike model*, M. Toulemonde, W. Assmann, C. Dufour, A. Meftah, C. Trautmann, *Nucl. Instr. Meth. B* 277 (2012) 28

*Dense and nanometric electronic excitations induced by swift heavy ions in an ionic CaF<sub>2</sub> crystal: Evidence for two thresholds of damage creation* M. Toulemonde, A. Benyagoub, C. Trautmann, N. Khalfaoui, M. Boccanfuso, C. Dufour, F. Gourbilleau, J. J. Grob, J. P. Stoquert, J. M. Costantini, F. Haas, E. Jacquet, K.-O. Voss, and A. Meftah, *Phys. Rev. B* 85 (2012) 054112.

## 2011

*The transformation balance between two types of structural defects in silica glass in ion-irradiation processes*, TF Yang, Y Gao, XJ Huang, YW Zhang, M. Toulemonde, JM Xue, S. Yan and YG Wang, *J. of non-Cryst. Sol.* 357 (2011) 3245

*Electronic sputtering of Gd<sub>3</sub>GasO<sub>12</sub> and Y<sub>3</sub>FesO<sub>12</sub> garnets: Yield, stoichiometry and comparison to track formation*, A. Meftah, W. Assmann, N. Khalfaoui, J.P. Stoquert, F. Studer, M. Toulemonde C. Trautmann and K.-O Voss *Nucl. Instr. Meth. B* 269 (2011) 955

*Annealing kinetics of latent particle tracks in Durango apatite*, B. Afra, M. Lang, M.D. Rodriguez, J. Zang, R. Gulian, N. Kerby, R.C. Ewing, C. Trautmann, M. Toulemonde and P. Kluth, *Phys. Rev. B* 83 (2011) 064116

*Synergy of nuclear and electronic energy losses in ion-irradiation processes: The case of vitreous silicon dioxide*, M. Toulemonde, W.J. Weber, Li Guosheng, V. Shutthanandan, P. Kluth, PF Yang, YG Wang and YW Zhang, *Phys. Rev. B* 83 (2011) 054106

**2010**

*Nanopores in track-etched polymer membranes characterized by small-angle x-ray scattering*, T. W. Cornelius, B. Schiedt, D. SeveriN, G Pépy, M. Toulemonde, P. Yu Apel, P. Boesecke and C. Trautmann *Nanotechnology* 21 (2010) 155702

*Nanoscale phase transitions under extreme conditions within an ion track*, J. Zhang, M. Lang, R. C. Ewing, R. Devanathan, W. J. Weber and M. Toulemonde, *J. Mater. Res.* 25 (2010) 1345

*Structural disorder in sapphire induced by 90.3 MeV xenon ions*, A. Kabir, A. Meftah, J.P. Stoquert, M. Toulemonde, I. Monnet, M. Izerrouken, *Nucl. Instr. Meth. B* 268 (2010) 3195

*Nanostructure formation due to impact of highly charged ions on mica*, R. Ritter, G. Kowarik, W. Meissl, A.S. El-Said, L. Maunoury, H. Lebius, C. Dufour, M. Toulemonde, F. Aumayr, *Vacuum* 84 (2010) 1062

**2009**

*Thick optical waveguides in lithium niobate induced by swift heavy ions (10 MeV/amu) at ultralow fluences* J. Olivares, Miguel L. Crespillo, O. Caballero-Calero, M. D. Ynsa, A. García-Cabañes, M. Toulemonde, C. Trautmann and F. Agulló-López, *Optics Express* 17(2009)24175.

*Optimization of nanopores obtained by chemical etching on swift-ion irradiated lithium niobate*, M.L. Crespillo, M. Otto, A. Munoz-Martin, J. Olivares, F. Agulló-López, M. Seibt, M. Toulemonde, C. Trautmann, *Nucl. Instr. Meth. B* 267 (2009) 1035

*Liquid-like phase formation in Gd<sub>2</sub>Zr<sub>2</sub>O<sub>7</sub> by extremely ionizing irradiation*, J. Zhang, M. Lang, J. Lian, J. Liu, C. Trautmann, S. Della-Negra, M. Toulemonde and R. C. Ewing, *J. Appl. Phys.* 105 (2009) 113510

*Defects creation in sapphire by swift heavy ions: A fluence depending process*, A. Kabir, A. Meftah, J.P. Stoquert, M. Toulemonde, I. Monnet, *Nucl. Instr. Meth. B* 267 (2009) 957

*Dislocation mobility study of heavy ion induced track damage in LiF crystals*, I. Manika, J. Maniks, M. Toulemonde and K. Schwartz, *Nucl. Instr. Meth. B* 267 (2009) 949

*Investigation of initial stage of chemical etching of ion tracks in polycarbonate*, N. Sertova, E. Balanzat, M. Toulemonde, C. Trautman, *Nucl. Instr. Meth. B* 267 (2009) 1039

**2008**

*Nano-hillocks on CaF<sub>2</sub> surfaces created by the potential energy of slow highly charged projectile ions*, A.S. El-Said, R. Heller, W. Meissl, R. Ritter, S. Facsko, C. Lemell, B. Solleder, I.C. Gebeshuber, G. Betz, M. Toulemonde, W. Möller, J. Burgdörfer, and F. Aumayr, *Phys. Rev. Lett.* 100 (2008) 237601

*Nanoporous SiO<sub>2</sub>/Si thin layers produced by ion track etching: dependence on the ion energy and criterion for etchability*, A. Dallanora, T. L. Marcondes, G. G. Bermudez, P. F. P. Fichtner, C. Trautmann, M. Toulemonde and R. M. Papaléo, *J. Appl. Phys.* 104 (2008) 024307

*Fine structure in swift heavy ion tracks in amorphous SiO<sub>2</sub>*, P. Kluth, C. S. Schnohr, O. H. Pakarinen, F. Djurabekova, D. J. Sprouster, R. Giulian, M. C. Ridgway, A. P. Byrne, C. Trautmann, D. J. Cookson, K. Nordlund, and M. Toulemonde, *Phys. Rev. Lett.* 101 (2008) 175503

*Amorphization of sapphire induced by swift heavy ions: A two step process*, A. Kabir, A. Meftah, J.P. Stoquert, M. Toulemonde, I. Monnet, *Nucl. Instr. Meth. B* 266 (2008) 2976

**2007**

*Potential energy threshold for nano-hillock formation by impact of slow highly charged ions on a CaF<sub>2</sub>(111) surface*, A.S. El-Said, W. Meissl, M.C. Simon, J.R.C. Lopez-Urrutia, C. Lemell, J. Burgdorfer, I.C. Gebeshuber, H.P. Winter, J. Ullrich, C. Trautmann, M. Toulemonde, F. Aumayr *Nucl. Instr. Meth. B* 258 (2007)167

*Scanning force microscopy of surface damage created by fast C60 cluster ions in CaF<sub>2</sub> and LaF<sub>3</sub> single crystals*, A.S. El-Said, F. Aumayr, S. Della-Negra, R. Neumann, K. Schwartz, M. Toulemonde, C. Trautmann, K.-O. Voss, Nucl. Instr. Meth. B 256 (2007) 313

*Cylindrical nanochannels in ion-track polycarbonate membranes studied by small-angle X-ray Scattering* G. Pepy, P. Boesecke, A. Kuklin, E. Manceau, B. Schiedt, Z. Siwy, M. Toulemonde, C. Trautmann, J. of Appl. Cryst. 40 (2007) S388

*Structural modification of C-doped SiO<sub>2</sub> induced by swift heavy ion irradiations*, Z.G. Wang, Z.M. Zhao, A. Benyagoub, M. Toulemonde, F. Levesque, Y. Song, Y.F. Jin, Y.M. Sun, C.B. Liu, H. Zang, K.F. Wei, Nucl. Instr. Meth. B 256 (2007) 288

## 2006

*Irradiation by swift heavy ions: Influence of the non-equilibrium projectile charge state for near surface experiments*, M. Toulemonde, Nucl. Instr. Meth. B 250 (2006) 263

*Experimental Phenomena and Thermal Spike Model Description of Ion Tracks in Amorphisable Inorganic Insulators*, M. Toulemonde, W. Assmann, C. Dufour, A. Meftah, F. Studer and C. Trautmann, Mat. Fys. Medd. 52 (2006) 263

*Incorporation of sol-gel SnO<sub>2</sub>:Sb into nanoporous SiO<sub>2</sub>*, B. Canut, M.G. Blanchin, S. Ramos-Canut, V. Teodorescu, M. Toulemonde, Nucl. Instr. Meth. B 245 (2006) 327

## 2005

*Characterization of swift heavy ion tracks in CaF<sub>2</sub> by scanning force and transmission electron microscopy*, N. Khalfaoui, C. C. Rotaru, S. Bouffard, M. Toulemonde, J. P. Stoquert, F. Haas, C. Trautmann, J. Jensen and A. Dunlop Nucl. Instr. Meth. B 240 (2005) 819

*Heavy ion induced damage in NaCl and KCl crystals*, M. Enculescu, K. Schwartz, C. Trautmann and M. Toulemonde, Nucl. Instr. Meth. B 229 (2005) 397

*Experimental determination of track cross-section in Gd<sub>3</sub>GasO<sub>12</sub> and comparison to the inelastic thermal spike model applied to several materials*, A. Meftah, J. M. Costantini, N. Khalfaoui, S. Boudjadar, J. P. Stoquert, F. Studer and M. Toulemonde, Nucl. Instr. Meth. B 237 (2005) 563

*Ion tracks developed in polyimide resist on Si wafers as template for nanowires*, M. Skupinski, M. Toulemonde, M. Lindeberg and K. Hjort, Nucl. Instr. Meth. B 240 (2005) 681

*Energy loss and fluence dependency of swift-ion-induced hardening in LiF*, I. Manika, J. Maniks, K. Schwartz, C. Trautmann and M. Toulemonde, Phys. Stat. Sol. C 2 (2005) 434

*Desorption of gold nanoclusters (2-150 nm) by 1 GeV Pb ions*, I. Baranov, S. Kirillov, A. Novikov, V. Obnorskii, M. Toulemonde, K. Wien, S. Yarmiychuk, V. A. Borodin and A. E. Volkov, Nucl. Instr. and Meth. B 230 (2005) 4951

*FTIR study of C-implanted SiO<sub>2</sub> after high-energy Pb-ion irradiation.*, Z. M. Zhao, Z. Wang, A. Benyagoub, M. Toulemonde, F. Levesque, Y. Song, Y. F. Jin and Y. Sun, High Ener. Phys. and Nucl. Phys. 29 (2005) 824

*Test of the hypothesis of transient molten state diffusion for swift-heavy-ion induced mixing*, S. K. Srivastava, D. K. Avasthi, W. Assmann, Z. G. Wang, H. Kucal, E. Jacquet, H. D. Carstanjen, and M. Toulemonde Phys. Rev. B 71, (2005) 193405.

## 2004

*Color-center creation in LiF under irradiation with swift heavy ions: Dependance on energy loss and fluence*, K. Schwartz, C. Trautmann, A.S. El-Said, R. Neumann, M. Toulemonde and W. Knolle, Phys. Rev. B 70 (2004) 184104

*Colour centre production in yttria-stabilized zirconia by swift charged particle irradiations*, J. M. Costantini, F. Beuneu, D. Gourier, C. Trautmann, G. Calas and M. Toulemonde, *J. of Phys.: Condens-Matt.* 16 (2004) 3957

*Track formation and fabrication of nanostructures with MeV-ion beams*, M. Toulemonde, C. Trautmann, E. Balanzat, K. Hjort and A. Weidinger, *Nucl. Instr. Meth. B* 216 (2004) 1

*Study of heavy-ion induced modifications in BaF<sub>2</sub> and LaF<sub>3</sub> single crystals* A.S. El-Said, M. Cranney, N. Ishikawa, A. Iwase, R. Neumann, K. Schwartz, M. Toulemonde and C. Trautmann, *Nucl. Instr. Meth. B* 218 (2004) 492

## 2003

*Electronic sputtering of metals and insulators by swift heavy ions*, M. Toulemonde, W. Assmann, C. Trautmann, F. Gruener, H. D. Mieskes, H. Kucal and Z. G. Wang, *Nucl. Instr. Meth. B* 212 (2003) 346

*Wetting on nanorough surfaces*, S.M.M. Ramos, E. Charleix, A. Benyagoub and M. Toulemonde, *Phys. Rev. E* 67 (2003) 31604

*Nanochannels in track etched membranes*, G. Pépy, E. Balanzat, B. Jean, A. Kuklin, N. Sertova and M. Toulemonde, *J. Appl. Cryst.* 36 (2003) 649

*Study of swift heavy ion tracks on crystalline quartz surfaces*, N. Khalfaoui, C.C. Rotaru, S. Bouffard, E. Jacquet, H. Lebius and M. Toulemonde, *Nucl. Instr. Meth. B* 209 (2003) 165

*Hardening and long-range stress formation in lithium fluoride induced by energetic ions*, I. Manika, J. Maniks, K. Schwartz, M. Toulemonde and C. Trautmann, *Nucl. Instr. Meth. B* 209 (2003) 93

*Neutral atom sputtering yields from Gd<sub>3</sub>Ga<sub>5</sub>O<sub>12</sub> and Y<sub>3</sub>Fe<sub>5</sub>O<sub>12</sub> garnets: Observation of a velocity effect*, N. Khalfaoui, M. Beuve, S. Bouffard, M. Caron, H. Rothard, S. Schlutig, J.P. Stoquert and M. Toulemonde, *Nucl. Instr. Meth. B* 209 (2003) 304

*SFM study of ion-induced hillocks on LiF exposed to thermal and optical annealing*, C. Mueller, A. Benyagoub, M. Lang, R. Neumann, K. Schwartz, M. Toulemonde and C. Trautmann, *Nucl. Instr. Meth. B* 209 (2003) 175

*Formation of dislocations and hardening of LiF crystals irradiated with energetic Au, Bi, Pb, and S ions*, J. Maniks, I. Manika, K. Schwartz, M. Toulemonde and C. Trautmann, *Proc. SPIE Int. Soc. Opt. Engin.* 5122 (2003) 15

*Ion track nanostructuring of dielectrics. Dielectrics in emerging technologies*, D. Misra, K. Wörhoff, P. Mascher, K. Hjort, E. Balanzat, C. Trautmann and M. Toulemonde *Proc. Electrochem. Soc. (Paris 2003)* p.3

*Neutral atom sputtering yields from Gd<sub>3</sub>Ga<sub>5</sub>O<sub>12</sub> and Y<sub>3</sub>Fe<sub>5</sub>O<sub>12</sub> garnets: Observation of a velocity effect*, N. Khalfaoui, M. Beuve, S. Bouffard, M. Caron, H. Rothard, S. Schlutig, J.P. Stoquert and M. Toulemonde, *Nucl. Instr. Meth. B* 209 (2003) 304

## 2002

*Vacuum ultraviolet absorption and ion track effect in LiF crystals irradiated by swift ions*, A. T. Davidson, K. Schwartz, J. D. Comins, A. G. Kozakiewicz, M. Toulemonde and C. Trautmann, *Phys. Rev. B* 66 (2002) 214102

*Jetlike component in sputtering of LiF induced by swift heavy ions*, M. Toulemonde, W. Assmann, F. Grüner and C. Trautmann, *Phys. Rev. Lett.* 88 (2002) 057602

*Swelling of insulators induced by swift heavy ions*, C. Trautmann, M. Boccanfuso, A. Benyagoub, S. Klaumünzer, K. Schwartz and M. Toulemonde, *Nucl. Instr. Meth. B* 191 (2002) 144

*Study of the damage produced in CaF<sub>2</sub> by swift heavy ion irradiation*, M. Boccanfuso, A. Benyagoub, K. Schwartz, C. Trautmann, M. Toulemonde, *Nucl. Instr. Meth. B* 191 (2002) 301

*Can a thin film be pinned at the surface by hollows?* S.M.M. Ramos, B. Canut, A. Benyagoub and M. Toulemonde, Nucl. Instr. Meth. B 191 (2002) 456

## 2001

*MeV gold irradiation induced damage in alpha-quartz: competition between nuclear and electronic stopping*, M. Toulemonde, S. M. M. Ramos, H. Bernas, C. Clerc, B. Canut, J. Chaumont and C. Trautmann Nucl. Instr. Meth. B 178 (2001) 331

*Effect of the temperature on track formation by energetic heavy ions in lithium fluoride*, K. Schwartz, A. Benyagoub, M. Toulemonde and C. Trautmann, Rad. Eff. Def. Sol. 155 (2001) 127

*Heavy-ion induced damage in fluorite nanopowder*, M. Boccanfuso, A. Benyagoub, M. Toulemonde, C. Trautmann, K. Schwartz and C. Dufour, Nucl. Instr. Meth. B175-177 (2001) 590

*Damage produced in magnesium aluminate spinel by high energy heavy ions including fission products of fission energy: microstructure modifications* T.W. Wiss, H. Matzke, V.V. Rondinella, T. Sonoda, W. Assmann, M. Toulemonde and C. Trautmann Prog. Nucl. Ener. 38 (2001) 281

*Study of ion beam induced swelling in fluorite as an inert matrix model*, M. Boccanfuso, A. Benyagoub, K. Schwartz, M. Toulemonde and C. Trautmann, Prog. Nucl. Ener. 38 (2001) 271

## 2000

*Swelling effects in lithium fluoride induced by swift heavy ions*, C. Trautmann, M. Toulemonde, J.M. Costantini, J.J. Grob and K. Schwartz, Phys. Rev. B 62 (2000) 13

*Damage morphology of Kr ion track in apatite: Dependence on the thermal annealing*, F. Villa, M. Grivet, M. Rebetz, C. Dubois, A. Chambaudet, N. Chevarier, G. Blondiaux, T. Savage and M. Toulemonde, Nucl. Instr. Meth. B 168 (2000) 72

*Amorphization and recrystallization of yttrium iron garnet under swift heavy ion beams*, J. M. Costantini, J. M. Desvignes and M. Toulemonde J. Appl. Phys. 87(2000)4164

*Damage structure in the ionic crystal LiF irradiated with swift heavy ions*, C. Trautmann, M. Toulemonde, K. Schwartz, J. M. Costantini and A. Müller, Nucl. Instr. Meth. B164-165 (2000) 365

*Damage kinetics in MeV gold ion irradiated crystalline quartz*, S.M.M Ramos, C. Clerc, B. Canut, J. Chaumont, M. Toulemonde and H. Bernas, Nucl. Instr. Meth. B166-167 (2000) 31

*Comparison of the structure and sizes of tracks induced by high-energy monoatomic and cluster ions incident on the surface of mica*, I.V. Vorobyova, C. T. Reimann and M. Toulemonde, Nucl. Instr. Meth. B166-167 (2000) 959

## 1999

*Nanometric phase transformation of oxide materials under GeV energy heavy ion irradiation*, M. Toulemonde, Nucl. Instr. Meth. B 156 (1999) 1

*Damage morphology of Kr ion tracks in apatite: dependence on dE/dx*, F. Villa, M. Grivet, M. Rebetz, C. Dubois, A. Chambaudet, A. Chevarier, P. Martin, F. Brossard, G. Blondiaux, T. Sauvage, and M. Toulemonde, Rad. Meas. 31 (1999) 65

*Carbon sputtering of polymer-like amorphous carbon by swift heavy ions*, F. Pawlak, Ch. Dufour, A. Laurent, E. Paumier, J. Perrière, J. P. Stoquert and M. Toulemonde, Nucl. Instr. Meth. B 151 (1999) 140

## 1998

*Tailoring of the properties of ferrites by latent track production*, J. M. Costantini, F. Studer and M. Toulemonde, Mat. Sc. Engin. A 253 (1998) 121



*Out-of-plane swelling of gadolinium gallium garnet induced by swift heavy ions*, M. Toulemonde, A. Meftah, J. M. Costantini, K. Schwartz and C. Trautmann, Nucl. Instr. Meth. B 146 (1998) 426

*Swelling in SiO<sub>2</sub> Quartz induced by energetic heavy ions*, C. Trautmann, J. M. Costantini, A. Meftah, K. Schwartz, J. P. Stoquert and M. Toulemonde, Mat. Res. Symp. Proc. 504 (1998) 123

*Tailoring of the properties of ferrites by latent track production*, J. M. Costantini, F. Studer and M. Toulemonde, Mat. Sci. Engin. A253(1998)121

*Radiation defects in lithium fluoride induced by heavy ions*, C. Trautmann K. Schwartz, J. M. Costantini, T. Steckenreiter and M. Toulemonde, Nucl. Instr. Meth. B 146 (1998) 367

*A comparison between tracks created by high energy mono-atomic and cluster ion in Y<sub>3</sub>Fe<sub>5</sub>O<sub>12</sub>*, J. Jensen, A. Dunlop, S. Della-Negra and M. Toulemonde, Nucl. Instr. Meth. B 146 (1998) 412

*Sputtering of vitreous silica and Y<sub>3</sub>Fe<sub>5</sub>O<sub>12</sub> in the electronic stopping power regime: A thermal spike description*, A. Meftah, M. Djebara, N. Khalfaoui, M. Toulemonde, Nucl. Instr. Meth. B 146 (1998) 431

*Radiation induced compaction and plastic flow of vitreous silica*, A. Benyagoub, S. Klaumünzer and M. Toulemonde, Nucl. Instr. Meth. B 146 (1998) 449

### 1997

*Amorphous deuterated carbon films irradiated by swift heavy ions: Infrared measurements and ion beam analysis*, F. Pawlak, Ch. Dufour, A. Laurent, E. Paumier, J. Perrière, J.P. Stoquert and M. Toulemonde, Nucl. Instr. Meth. B 131 (1997) 135

*High resolution electron microscopy of tracks in solids*, F. Studer, M. Hervieu, J. M. Costantini and M. Toulemonde, Nucl. Instr. Meth. B 122 (1997) 449

*Hydrogen pumping in amorphous deuterated carbon films irradiated by swift heavy ions*, F. Pawlak, E. Balanzat, Ch. Dufour, A. Laurent, E. Paumier, J. Perrière, J.P. Stoquert and M. Toulemonde, Nucl. Instr. Meth. B 122 (1997) 579

*Radiation damage in UO<sub>2</sub> by swift heavy ions*, T. Wiss, Hj. Matzke, C. Trautmann, M. Toulemonde and S. Klaumünzer, Nucl. Instr. Meth. B 122 (1997) 583

### 1996

*Defect creation induced by GeV ions in MgO containing Na precipitates*, M. Beranger, R. Brenier, B. Canut, S.M.M. Ramos, P. Thévenard, E. Balanzat and M. Toulemonde, Nucl. Instr. Meth. B 112 (1996) 112

*Surface modifications of LiNbO<sub>3</sub> single crystals induced by swift heavy ions*, B. Canut, S. M. M. Ramos, R. Brenier, P. Thévenard, J. L. Loubet and M. Toulemonde, Nucl. Instr. Meth. B 107 (1996) 194

*Electronic stopping power threshold of sputtering in yttrium iron garnet*, A. Meftah, M. Djebara, J. P. Stoquert, F. Studer and M. Toulemonde, Nucl. Instr. Meth. B 107 (1996) 242

*Europium diffusion enhancement in LiNbO<sub>3</sub> irradiated with GeV nickel ions: influence of the damage morphology*, S. M. M. Ramos, B. Canut, M. Ambri, C. Clément, E. Dooryhee, M. Pitaval, P. Thévenard and M. Toulemonde, Nucl. Instr. Meth. B 107 (1996) 254

*Damage induced by high energy lead irradiation in (V<sub>0.997</sub>Cr<sub>0.003</sub>)<sub>2</sub>O<sub>3</sub> ceramics*, H.R. Kokabi, F. Studer and M. Toulemonde, Nucl. Instr. Meth. B 111 (1996) 75

### 1995

*Swift-uranium-ion-induced damage in sapphire*, B. Canut, A. Benyagoub, G. Marest, A. Meftah, N. Moncoffre, S.M.M. Ramos, F. Studer, P. Thévenard and M. Toulemonde, Phys. Rev. B 51 (1995) 12194

*Europium diffusion enhancement in lithium niobate by GeV gadolinium ion irradiation*, S.M.M. Ramos, R. Brenier, B. Canut, G. Fuchs, P. Thevenard, M. Treilleux, A. Meftah and M. Toulemonde, *J. Appl. Phys.* 77 (1995) 2952

*Damage of M-type baryum hexaferrites induced by GeV-heavy ion irradiations*, J.M. Constantini, F. Brisard, A. Meftah, M. Toulemonde and F. Studer, *Nucl. Instr. Meth. B* 106 (1995) 567

*Defect creation by swift heavy ions: material modifications in the electronic stopping power regime*, M. Toulemonde, *Appl. Radiat. Isot.* 46 (1995) 375.

*Latent track formation in LiNbO<sub>3</sub> single crystals irradiated by GeV uranium ions*, B. Canut, R. Brenier, A. Meftah, P. Moretti, S. Ould Salem, M. Pitaval, S. M. M. Ramos, P. Thévenard and M. Toulemonde, *Rad. Eff. Def. Sol.* 136 (1995) 307

*Europium diffusion in Y- and Z-cut LiNbO<sub>3</sub> pre-irradiated by GeV uranium ions*, S. M. M. Ramos, R. Brenier, B. Canut, G. Fuchs, A. Meftah, P. Moretti, S. Ould Salem, P. Thevenard, M. Toulemonde and M. Treilleux, *Rad. Eff. Def. Sol.* 136 (1995) 279

*Self-trapped excitons luminescence under dense electronic excitations: Ion-induced transient thermal process*, L. Protin, E. Balanzat, S. Bouffard, A. Cassimi, E. Dooryhee, J. L. Doualan, Ch. Dufour, J. P. Grandin, J. Margerie, E. Paumier and M. Toulemonde, *Rad. Eff. Def. Sol.* 136 (1995) 287

#### 1994

*Track formation in SiO<sub>2</sub> quartz and the thermal-spike mechanism*, A. Meftah, F. Brisard, J.M. Costantini, E. Dooryhee, M. Hage-Ali, M. Hervieu, J.P. Stoquert, F. Studer and M. Toulemonde, *Phys. Rev. B* 49 (1994) 12457

*Damage and conductivity of yttrium iron garnet irradiated with GeV-heavy ions*, J.M. Costantini, F. Brisard, A. Meftah, F. Studer and M. Toulemonde, *Nucl. Instr. Meth. B* 91 (1994) 288

*Swift heavy ions in insulating and conducting oxides: tracks and physical properties*, M. Toulemonde, S. Bouffard and F. Studer, *Nucl. Instr. Meth. B* 91 (1994) 208

*Damage induced in LiNbO<sub>3</sub> single crystals by GeV gadolinium ions*, B. Canut, R. Brenier, A. Meftah, P. Moretti, S. Ould Salem, S.M.M. Ramos, P. Thevenard and M. Toulemonde, *Nucl. Instr. Meth. B* 91 (1994) 312

*Moessbauer study of sapphire irradiated with high energy heavy ions*, J.M. Marty, A. Benyagoub, G. Marest, N. Moncoffre, M. Toulemonde, A. Meftah, F. Studer, B. Canut, S.M.M. Ramos and P. Thevenard *Nucl. Instr. Meth. B* 91 (1994) 274

#### 1993

*Spontaneous magnetization induced in the spinel ZnFe<sub>2</sub>O<sub>4</sub> by heavy ion irradiation in the electronic stopping power regime*, F. Studer, Ch. Houpert, D. Groult, J. Yun Fan, A. Meftah and M. Toulemonde, *Nucl. Instr. Meth. B* 82 (1993) 91

*Swift heavy ions in magnetic insulators: A damage cross section velocity effect*, A. Meftah, F. Brisard, J.M. Costantini, M. Hage-Ali, J.P. Stoquert, F. Studer and M. Toulemonde, *Phys. Rev. B* 48 (1993) 920

*Conductivity modifications of calcium-doped yttrium iron garnet by swift heavy ions*, J.M. Costantini, F. Brisard, A. Meftah, F. Studer and M. Toulemonde, *Rad. Eff. Def. Sol.* 123 (1993) 233

*High energy heavy ion irradiation effects in Al<sub>2</sub>O<sub>3</sub>*, B. Canut, S.M.M. Ramos, P. Thevenard, N. Moncoffre, A. Benyagoub, G. Marest, A. Meftah, M. Toulemonde and F. Studer, *Nucl. Instr. Meth. B* 80/81 (1993) 1114

*Infrared spectrometry observations of SiO<sub>2</sub> films irradiated by high energy heavy ions*, M.C. Busch, A. Slaoui, E. Dooryhee and M. Toulemonde, *Rad. Eff. Def. Sol.* 126 (1993) 229

*Electronic stopping power threshold of damage creation in yttrium iron garnet*, A. Meftah, M. Hage-Ali, J.P. Stoquert, F. Studer and M. Toulemonde, *Rad. Eff. Def. Sol.* 126 (1993) 251

### 1992

*Structural and electrical damage induced by high-energy heavy ions in SiO<sub>2</sub>/Si structures*, M. C. Busch, A. Slaoui, P. Siffert, E. Dooryhee and M. Toulemonde, *J. Appl. Phys.* 71 (1992) 2596

*High energy heavy ion irradiation damage in yttrium iron garnet*, J.M. Costantini, F. Brisard, J.L. Flament, A. Meftah, M. Toulemonde and M. Hage-Ali, *Nucl. Instr. Meth. B* 65 (1992) 568

*Irradiation damage in magnetic insulators*, F. Studer and M. Toulemonde, *Nucl. Instr. Meth. B* 65 (1992) 560

### 1991

*Influence of the substrate temperature on the latent track damage cross section in magnetic insulators*, Ch. Houpert, F. Studer, H. Pascard, Jin Yun Fan and M. Toulemonde, *Nucl. Tracks Rad. Meas.* 19 (1991) 83

*High-energy irradiation of magnetic insulators by lead ions: appearance of a plateau in the damage efficiency*, A. Meftah, N. Merrien, N. Nguyen, F. Studer, H. Pascard and M. Toulemonde, *Nucl. Instr. Meth. B* 59 (1991) 605

*Local environment of iron in heavy-ion-irradiated amorphous magnetic oxides by Mossbauer and X-ray absorption spectroscopy*, F. Studer, C. Houpert, M. Toulemonde and E. Dartyge, *J. Sol. St. Chem.* 91 (1991) 238

*Saturation in the damage efficiency in magnetic insulators irradiated by high energy heavy ions*, F. Studer, Ch. Houpert, H. Pascard, R. Spohr, J. Vetter, Jin Yun Fan and M. Toulemonde, *Rad. Eff. and Def. Sol.* 116 (1991) 59

### 1990

*Does continuous trail of damage appear at the change in the electronic stopping power damage rate?*, M. Toulemonde, N. Enault, Jin Yun Fan and F. Studer, *J. Appl. Phys.* 68 (1990) 1545

*Damage induced by high electronic stopping power in SiO<sub>2</sub> quartz*, M. Toulemonde, E. Balanzat, S. Bouffard, J.J. Grob, M. Hage-Ali and J.P. Stoquert, *Nucl. Instr. Meth. B* 46 (1990) 64

### 1989

*Transition from localized defects to continuous latent tracks in magnetic insulators by high energy heavy ions: a HREM investigation*, Ch. Houpert, F. Studer, D. Groult and M. Toulemonde, *Nucl. Instr. Meth. B* 39 (1989) 720

*Latent tracks in magnetic insulators*, F. Studer, Ch. Houpert, D. Groult and M. Toulemonde, *Rad. Eff. Def. Sol.* 110 (1989) 55.

*Structural modifications induced by electronic energy deposition during the slowing down of heavy ions in matter*, M. Toulemonde, E. Balanzat, S. Bouffard, J. C. Jousset, *Nucl. Instr. Meth. B* 39 (1989) 1.

*High-energy xenon ion irradiation effects on the electrical properties of yttrium iron garnet*, J.M. Costantini, J.L. Flament, D. Groult, L. Sinopoli, F. Studer, M. Toulemonde, J. Trochon, J.L. Uzureau, *Rad. Eff. Def. Sol.* 110 (1989) 193

*Interaction of energetic heavy ions with matter*, S. Bouffard, E. Balanzat, J.C. Jousset, M. Toulemonde, *Annales de Physique*, 14, C2 (1989) 91

*Structural modifications induced by the electronic slowing down of swift heavy ions in matter*, J.C. Jousset, E. Balanzat and M. Toulemonde, *Mat. Res. Symp. Proc.* 128 (1989) 357

*Relations between electronic stopping power and defects microstructures induced by swift heavy ions in spinel oxides and related compounds*, Ch. Houpert, D. Groult, F. Studer and M. Toulemonde, *Rad. Eff. Def. Sol.* 110 (1989) 189

### 1988

*Comparison of the radii of latent tracks induced by high-energy heavy ions in  $Y_3Fe_5O_{12}$  by HREM*, M. Toulemonde and F. Studer, Phil. Mag. A 58 (1988) 799

*Latent track formation induced by high electronic energy loss in hexaferrites  $AFe_{12}O_{19}$  ( $A=Ba, Sr$ ): a magnetic investigation*, Ch. Houpert, N. Nguyen, F. Studer, D. Groult and M. Toulemonde, Nucl. Instr. Meth. B 34 (1988) 228

*HREM investigation of GeV heavy ion latent tracks in ferrites*, Ch. Houpert, M. Hervieu, D. Groult, F. Studer and M. Toulemonde, Nucl. Instr. Meth. B 32 (1988) 393

*Latent tracks induced by heavy ions in the GeV energy range: results at GANIL*, E. Balanzat, J.C. Jousset, M. Toulemonde, Nucl. Instr. Meth. B 32 (1988) 368

*Magnetic properties of spinel oxides after high electronic excitation induced by xenon ions*, F. Studer, H. Pascard, D. Groult, Ch. Houpert, N. Nguyen and M. Toulemonde, Nucl. Instr. Meth. B 32 (1988) 389

### 1987

*Damage processes and magnetic field orientation in ferrimagnetic oxides  $Y_3Fe_5O_{12}$  and  $BaFe_{12}O_{19}$  irradiated by high-energy heavy ions: a Mössbauer study*, M. Toulemonde, G. Fuchs, N. Nguyen, F. Studer and D. Groult, Phys. Rev. B 35 (1987) 6560

*Influence of the electronic stopping power on the damage rate on yttrium-iron garnets irradiated by high-energy heavy ions*, G. Fuchs, F. Studer, E. Balanzat, D. Groult, M. Toulemonde and J.C. Jousset, Europhys. Lett. 3 (1987) 321

*Threshold electronic energy loss for the creation of latent tracks in  $Y_3Fe_5O_{12}$  and  $BaFe_{12}O_{19}$  oxides irradiated by high energy heavy ions*, F. Studer, D. Groult, N. Nguyen and M. Toulemonde, Nucl. Instr. Meth. B 19/20 (1987) 856

*Interaction of GeV heavy ions with solids-first results at GANIL*, E. Balanzat, J. Dural, J.C. Jousset, M. Toulemonde, Nucl. Instr. Meth. B 19/20 (1987) 120.

*HREM investigation of GeV heavy ion latent tracks in ferrites*, C. Houpert, M. Hervieu, G. Fuchs, F. Studer, M. Toulemonde Nucl. Instr. Meth. B 32 (1987) 393

*Interaction of GeV ions with solid, First results at GANIL*, E. Balanzat, J. Dural, J.C. Jousset, M. Toulemonde, Nucl. Instr. Meth. B 19-20 (1987) 120

### 1986

*Ferrimagnetic-paramagnetic transitions induced by heavy ion irradiation: a Mössbauer investigation*, F. Studer, N. Nguyen, G. Fuchs, M. Toulemonde, Hyperfine Inter. 29 (1986) 1287

**B) Metals****2018**

*Graphitization of amorphous carbon by swift heavy ion impacts: Molecular dynamics simulation* K. Kupka, A.A. Leino, W. Ren, H. Vázquez, E.H. Åhlgren, K. Nordlund, M. Tomut, C. Trautmann, P. Kluth, M. Toulemonde, F. Djurabekova *Dia. Rel. Mat.* 83(2018)134

*Sputtering yield of amorphous C-13 thin films under swift heavy-ion irradiation* S. A. Khan, A. Tripathi, M. Toulemonde, C. Trautmann and W. Assmann *Nucl. Instr. Meth. B* 314 (2013) 34

**2012**

*Morphology of swift heavy ion tracks in metallic glasses*, M.D. Rodríguez, B. Afra, C. Trautmann, M. Toulemonde, T. Bierschenk, J. Leslie, R. Giulian, N. Kirby, P. Kluth, *Journal of Non-Crystalline Solids* 358 (2012) 571

**2010**

*Nano-structure formation due to impact of highly charged ions on HOPG*, R. Ritter, G. Kowarik, W. Meissl, L. Süß, L. Maunoury, H. Lebius, C. Dufour, M. Toulemonde, F. Aumayr, *Nucl. Instr. Meth. B* 268 (2010) 2897

**2003**

*Effects of swift heavy ion bombardment on magnetic tunnel junction functional properties*, Y. Conraux, J. P. Nozières, V. Da Costa, M. Toulemonde and K. Ounadjela, *J. of Appl. Phys.* 93 (2003) 7301

**2001**

*Induced magnetic anisotropy in metallic glasses irradiated by swift heavy ions*, J. Juraszek and A. Fnidiki, M. Toulemonde *J. Appl. Phys.* 89 (2001) 3151

**1999**

*Experimental evidence of the irradiation temperature effect in bismuth under swift heavy ion irradiation*, Ch. Dufour, F. Beuneu, E. Paumier and M. Toulemonde, *EuroPhys. Lett.* 45 (1999) 585

**1998**

*Vizualization by near-gield microscopy of the impacts of swift heavy ions in amorphous metallic alloys*, A. Audouard, R. Mamy, M. Toulemonde, G. Szenes and L Thomé, *Nucl. Instr. Meth. B* 146 (1998) 217

*Something about the giant deformation of amorphous alloys irradiated with GeV ions*, A. Audouard, M. Toulemonde, G. Szenes and L Thomé, *Nucl. Instr. Meth. B* 146 (1998) 233

**1997**

*Impact of GeV heavy ions in amorphous metallic alloys investigated by near-field scanning microscopy*, A. Audouard, R. Mamy, M. Toulemonde, G. Szenes and L. Thomé, *Europhys. Lett.* 40 (1997) 527

**1996**

*Growth phenomenon in amorphous solids irradiated with GeV heavy ions: electronic energy loss dependence of initial growth rate*, A. Audouard, J. Dural, M. Toulemonde, A. Lovas, G. Szenes and L. Thomé, *Phys. Rev. B* 54 (1996) 22

*Electronic slowing down-induced dimensional changes in amorphous?* A. Audouard, J. Dural, M. Toulemonde, A. bvas, G. Szenes, L. Thorn *Nucl. Instr. Meth. B* 107 (1996) 185

*Track etching in amorphous metallic  $Fe_{81}B_{13.5}Si_{3.5}C_2$* , C. Trautmann, Ch. Dufour, E. Paumier, R. Spohr and M. Toulemonde, *Nucl. Instr. Meth. B* 107 (1996) 397

*Effect of the radial energy distribution on the ion track etching in amorphous metallic  $Fe_{81}B_{13.5}Si_{3.5}C_2$* , C. Trautmann, Ch. Dufour, E. Paumier and M. Toulemonde, *Nucl. Instr. Meth. B* 108 (1996) 94

*Amorphization of rare earth cobalt intermetallic alloys by swift heavy ion irradiation*, M. Ghidini, J.P. Nozières, D. Givord, M. Toulemonde and B. Gervais, *J. Phys.: Condens. Matter* 8 (1996) 8191

*Defects in metals induced by nuclear collisions and their modifications by swift heavy ion irradiations*, Z.G. Wang, Ch. Dufour, E. Paumier and M. Toulemonde, Nucl. Instr. Meth. 115 (1996) 577

*Velocity effect on the damage creation in metals in the electronic stopping power regime*, .G. Wang, Ch. Dufour, B. Cabeau, J. Dural, G. Fuchs, E. Paumier, F. Pawlak, M. Toulemonde Nucl. Instr. Meth. B 107 (1996) 175

### 1993

*Observation of etched tracks in an amorphous metal*, C. Trautmann, S. Andler, W. Bröchle, R. Spohr and M. Toulemonde, Rad. Eff. Def. Sol. 126 (1993) 207

*Stopping power dependence of ion track etching in amorphous metallic  $Fe_{81}B_{13.5}Si_{3.5}C_2$* . C. Trautmann, R. Spohr and M. Toulemonde, Nucl. Instr. Meth. B 83 (1993) 513

### 1990

*Heavy ions irradiation effects in high  $T_c$  superconductors: Mössbauer study of Fe-doped  $YBa_2Cu_3O_{7-x}$  irradiated by 3.5 GeV-Xenon ions*, D. Bourgault, N. Nguyen, D. Groult, S. Bouffard, J. Provost, M. Hervieu, M. Toulemonde and B. Raveau, Rad. Eff. Def. Sol. 114 (1990) 315

### 1989

*Anomalous enhancement in defect production in gallium irradiated by high-energy xenon ions*, E. Paumier, M. Toulemonde, J. Dural, F. Rullier-Albenque, J.P. Girard and P. Bogdanski, Europhys. Lett. 10 (1989) 555

*Modification of superconducting and normal properties of new oxide superconductors  $YBa_2Cu_3O_{7-x}$  and  $Bi_2Sr_2CaCu_2O_8$  by high energy ions bombardment*, D. Groult, J. Provost, B. Raveau, F. Studer, S. Bouffard, D. Bourgault and M. Toulemonde, Revue de Phys. Appl. 24 (1989) 507

*Modifications of the physical properties of the high- $T_c$  ( $0.1 < \delta < 0.7$ ) by 3.5-GeV xenon ion bombardment*, D. Bourgault, S. Bouffard, M. Toulemonde, D. Groult, J. Provost, F. Studer, N. Nguyen, B. Raveau, Phys. Rev. B 39 (1989) 6549

### 1988

*Improvement of  $T_c$  in the Grain Surface Superconductor  $La, CuO$ , by GeV Heavy-Ion Irradiation (3)*, D. Groult, J. Provost, B. Raveau, F. Studer, S. Bouffard, J.C. Jousset, S.J. Lewandowski, M. Toulemonde, F. Rullier-Albenque? EPL 6 (1988) 151

*Observation of Transient Response of Nb Superconducting Thin Film to a Single-Heavy-Ion Impact*, S.J. Lewandowski, E. Paumier, Y. Qéré, R. Sobolewski, M. Toulemonde, J. Konopka, J. Dural, H. Bielska-Lewandowska, P. Gierlowski, G. Jung Jin-Yun Fan, EPL 6 (1988) 151

### 1987

*High energy argon irradiation of polycrystalline iron*, A. Dunlop, L. Boulanger, D. Lesueur, N. Lorenzelli, M. Toulemonde, Mat. Sci. For. 15-18 (1987) 1117.

### 1984

*Displacement cascades produced in  $Cu_3Au$  by 1.8 GeV Ar ion irradiation*, A. Barbu, G. Martin, M. Toulemonde and J.C. Jousset, Comptes Rendus de l'Academie des Sciences, Serie II (Mécanique, Physique, Chimie, Sciences de l'Univers, Sciences de la Terre) 299 (1984) 409

### C) Semiconductors

#### 2015

*Track formation in III-N semiconductors irradiated by swift heavy ions and fullerene and re-evaluation of the inelastic thermal spike model*, M. Sall, I. Monnet, F. Moisy, C. Grygiel, S. Jublot-Leclerc, S. Della-Negra, M. Toulemonde, E. Balanzat, J. Mater. Sci. 50(2015)5214

#### 2012

*Combined experimental and computational study of the recrystallization process induced by electronic interactions of swift heavy ions with silicon carbide crystals*, A. Debelle, M. Backman, L. Thomé, W. J. Weber, M. Toulemonde, S. Mylonas, A. Boule, O. H. Pakarinen, N. Juslin, F. Djurabekova, K. Nordlund, F. Garrido, and D. Chaussende, Phys. Rev. 86 (2012) 100102(R)

#### 2003

*Discontinuous track in relaxed Si<sub>0.5</sub>Ge<sub>0.5</sub> alloy layers: a velocity effect*, P.I. Gaiduk, A. Nylandsted-Larsen, J. Lundsgaard-Hansen, C. Trautmann and M. Toulemonde, Appl. Phys. Lett. 83 (2003) 1746

*Effect of alloy composition on track formation in relaxed Si<sub>1-x</sub>Ge<sub>x</sub>*, P.I. Gaiduk, C. Trautmann, M. Toulemonde, J. Lundsgaard Hansen and A. Nylandsted Larsen, Physica B 340 (2003) 808

#### 2002

*Discontinuous tracks in arsenic-doped crystalline Si<sub>0.5</sub>Ge<sub>0.5</sub> alloy layers*; P. I. Gaiduk, A. Nylandsted Larsen, C. Trautmann, and M. Toulemonde Phys. Rev. B 66 (2002) 045316

#### 2001

*Latent track formation in germanium irradiated by 20, 30 and 40 MeV fullerenes in the electronic regime*, A. Colder, O. Marty, B. Canut, M. Levalois, X. Portirt, S.M.M. Ramos, M. Toulemonde Nucl. Instr. Meth. B 174 (2001) 491

#### 1992

*Induced damage by high energy heavy ion irradiation at the GANIL accelerator in semiconductor materials*, M. Levalois, P. Bogdanski and M. Toulemonde, Nucl. Instr. Meth. B 63 (1992) 14

*Deep-level transient spectroscopy studies of U-irradiated silicon*, P. Mary, P. Bogdanski, M. Toulemonde, R. Spohr, J. Vetter, Nucl. Instr. Meth. B 62 (1992) 391

*Stability of vacancies in silicon irradiated by xenon ions at 77 K*, P. Bogdanski, P. Mary and M. Toulemonde, Nucl. Instr. Meth. B 62 (1992) 388

#### 1991

*X-ray study of Si crystals irradiated by fast uranium ions*, J. Auleytner, J. Bak-Misiuk, Z. Furmanik, M. Toulemonde and J. Vetter, Rad. Eff. Def. Sol. 115 (1991) 335

#### 1990

*Type of conversion by high energy particles in Hg<sub>x</sub>Cd<sub>1-x</sub>Te compound*, G. Blanchard, J. Favre, J.F. Barbot, J.C. Desoyer, M. Toulemonde; M. Konczykowski, D. Le Scoul, J.L. Dessus, J. Appl. Phys. 66 (1990) 3237

#### 1989

*High energy heavy ion irradiation of silicon*, M. Toulemonde, J. Dural, G. Nouet, P. Mary, J. F. Hamet, M. F. Beaufort, J.C. Desoyer, C. Blanchard and J. Auleytner, Physica Stat. Sol. A 114 (1989) 467

*Electronic properties of defects created by 1.6 GeV argon ions in silicon*, J. Krynicki, M. Toulemonde, J.C. Muller and P. Siffert, Mat. Sci. Eng. B 2 (1989) 105

*Damage related deep electronic levels in silicon irradiated with 1.6 GeV Ar ions*, J. Krynicki, M. Toulemonde, J.C. Muller and P. Siffert, Rad. Eff. Def. Sol. 110 (1989) 203

*High energy heavy ion irradiation of silicon*, M. Toulemonde, J. Dural, G. Nouet, P. Mary, J. F. Hamet, M. F. Beaufort, J.C. Desoyer, C. Blanchard and J. Auleytner, *Physica Stat. Sol. A* 114 (1989) 467

*Defects created by 3.5 GeV Xe ions in silicon*, P. Mary, P. Bogdanski, G. Nouet, M. Toulemonde, *Appl. Surf. Sci.* 43 (1989) 102



## D) Multilayers and compounds materials irradiations: amorphization, crystallisation, shaping

**2019**

*Prospects of swift heavy ion induced mixing across Pd/Si and Ni/Si interfaces from inelastic thermal spike model calculation* Paramita Patra, M. Toulemonde, S.K. Srivastava Nucl. Instr. Meth. B 460 (2019) 104.

**2012**

*Rational description of the ion-beam shaping mechanism*, G. Rizza, P. E. Coulon, V. Khomenkov, C. Dufour, I. Monnet, M. Toulemonde, S. Perruchas, T. Gacoin, D. Mailly, X. Lafosse, C. Ulysse and E. A. Dawi, Phys. Rev. B 86 (2012) 035450

**2011**

*Role of Thermodynamics in the Shape Transformation of Embedded Metal Nanoparticles Induced by Swift Heavy-Ion Irradiation*, M.C. Ridgway, R. Giulian, D.J. Sprouster, P. Kluth, L.L. Araujo, D.J. Llewellyn, A.P. Byrne, F. Kremer, P.F.P. Fichtner, G. Rizza, H. Amekura and M. Toulemonde, Phys. Rev. Lett. 106 (2011) 095505

*Ion-induced elongation of gold nanoparticles in silica by irradiation with Ag and Cu swift heavy ions: track radius and energy loss threshold*, E.A. Dawi, A. Vredenberg, G. Rizza and M. Toulemonde Nanotech. 22 (2011) 215607

**2009**

*Swift iodine ion modification of the structural and magnetotransport properties of Fe/Cr systems*, M. Kac, J. Zukrowski, M. Toulemonde, R. Kruk, V. Tokman, A. Polit, Y. Zabala, A. Dobrowolska, O. Synashenko, M. Marszałek, Nucl. Instr. Meth. B 267 (2009) 925

*Atom probe tomography of swift ion irradiated multilayers*, J. Juraszek, A. Grenier, J. Teillet, E. Cadel, N. Tiercelin, I. Monnet and M. Toulemonde, Nucl. Instr. Meth. B 267 (2009) 912

*Swift iodine ion modification of the structural and magnetotransport properties of Fe/Cr systems*, M. Kac, J. Atom probe tomography of swift ion irradiated multilayers, J. Juraszek, A. Grenier, J. Teillet, E. Cadel, N. Tiercelin, I. Monnet and M. Toulemonde, Nucl. Instr. Meth. B 267 (2009) 912

**2008**

*Structural and magnetic characterization of Fe/Cr/Fe tri-layers and Fe/Cr multilayers after swift Au ion irradiation*, M. Kaç, I. Dézsi, M. Toulemonde, R. Kruk, A. Polit, Y. Zabala, Cs. Fetzer, I. Szűcs, M. Mitura-Nowak, V. Tokman, J. Żukrowski, and M. Marszałek, Phys. Stat. Sol. A 205 (2008) 1855

**2007**

*Magnetostrictive properties of Kr-ion irradiated multilayers*, A. Grenier, J. Juraszek, N. Tiercelin, J. Teillet, M. Toulemonde, J.M. Le Breton, Journal of Magnetism and Magnetic Materials 310 (2007) 2624–2626

**2006**

*Melting of Au and Al in nanometer Fe/Au and Fe/Al multilayers under swift heavy ions: A thermal spike study*, A. Chettah, Z.G. Wang, M. Kac, H. Kucal, A. Meftah, M. Toulemonde, Nucl. Instr. Meth. B 245 (2006) 150

*Swift ion irradiation of magnetostrictive multilayers*, J. Juraszek, A. Grenier, J. Teillet, N. Tiercelin, F. Petit, J. Ben Youssef, M. Toulemonde, Nucl. Instr. Meth. B 245 (2006) 157

*Swift ion irradiation of magnetostrictive multilayers*, J. Juraszek, A. Grenier, J. Teillet, N. Tiercelin, F. Petit, J. Ben Youssef, M. Toulemonde, Nucl. Instr. Meth. B 245 (2006) 157

**2007**

*Magnetostrictive properties of Kr-ion irradiated multilayers*, A. Grenier, J. Juraszek, N. Tiercelin, J. Teillet, M. Toulemonde, J.M. Le Breton, Journal of Magnetism and Magnetic Materials 310 (2007) 2624–2626

**2005**

*Swift heavy ion modification of the interface structure in Fe/Cr multilayers*, M. Kaç, M. Toulemonde, J. Jaworski, J. Juraszek, R. Kruk, S. Protsenko, V. Tokman and M. Marszałek, Vacuum 78 (2005) 661.

**2004**

*CEMS Investigations of Swift Heavy Ion Irradiation Effects in Tb/Fe Multilayers*, J. Juraszek, J. Teillet, A. Fnidiki and M. Toulemonde, *Hyp. Int.* 156/157 (2004) 615

*Ion Modification of the Magnetotransport Properties of Fe/Cr Multilayers*, M. Kaç, M. Toulemonde, J. Jaworski, J. Juraszek, R. Kruk, S. Protsenko, V. Tokman and M. Marszałek, *Molec. Phys. Rep.* 40 (2004) 89.

**2003**

*Electronic thermal spike effects in intermixing of bilayers induced by swift heavy ions*, Z.G. Wang, C. Dufour, S. Euphrasie and M. Toulemonde, *Nucl. Instr. Meth. B* 209 (2003) 194

*Transient enhanced diffusion of oxygen mediated by large electronic excitation*, D. K. Avasthi, W. Assmann, A. Tripathi, S. K. Sivrastava, S. Gosh, F. Gruener and M. Toulemonde, *Phys. Rev. B* 68 (2003) 153106

**2000**

*Directional effects of heavy ion irradiation in Tb/Fe multilayers*, J. Juraszek, A. Fnidiki, J. Teillet, M. Toulemonde, A. Michel and W. Keune, *Phys. Rev. B* 61 (2000) 12

**1999**

*Interfacial reactions and evolution of the magnetic anisotropy in Tb/Fe multilayers irradiated by swift heavy ions*, J. Juraszek, A. Fnidiki, J. Teillet, F. Richomme, N. H. Duc, M. Toulemonde and W. Keune, *Appl. Phys. Lett.* 74(1999)2378

**1998**

*Selective Fe/Tb and Tb/Fe interface study: Swift uranium irradiation effect*, J. Juraszek, A. Fnidiki, J. Teillet, F. Richomme and M. Toulemonde, *Sol. St. Comm.* 106 (1998) 83

*Evidence for recrystallization of amorphous Fe/Tb multilayers under swift heavy ion irradiation*, J. Juraszek, A. Fnidiki, J. Teillet, F. Richomme, M. Toulemonde and W. Keune, *Nucl. Instr. Meth. B* 146 (1998) 244

*Adhesion enhancement of thin gold films on sapphire by electronic processes using atomic and fullerene ions*, S. M. Ramos, S. Bouffard, B. Canut, S. Della Negra and M. Toulemonde, *Nucl. Instr. Meth. B* 146 (1998) 462

**1997**

*Ion irradiation effects on bcc Fe/Tb multilayers*, J. Teillet, F. Richomme, A. Fnidiki and M. Toulemonde, *Phys. Rev. B* 55 (1997) 11560

*Xe ions irradiation on bcc-Fe/Tb multilayers*, F. Richomme, J. Teillet, A. Fnidiki and M. Toulemonde, *Nucl. Instr. Meth. B* 122 (1997) 507

*Gold wetting effects on sapphire irradiated with GeV uranium ions*, B. Canut, S.M.M. Ramos, J. Fornazero, P. Thévenard and M. Toulemonde, *Nucl. Instr. Meth. B* 122 (1997) 538

**1996**

*Tb/Fe amorphous multilayers: Transformations under ion irradiation*, F. Richomme, A. Fnidiki, J. Teillet and M. Toulemonde, *Nucl. Instr. Meth. B* 107 (1996) 374

**1990**

*Crystallization of ultrathin W-Si multilayer structures by high-energy heavy ion irradiations*, J. Marfaing, W. Marine, B. Vidal, M. Toulemonde, M. Hage Ali and J.P. Stoquert, *Appl. Phys. Lett.* 57 (1990) 1739

*Instability and structural transformation of amorphous ultra-thin W-Si multilayer structures during heavy ion irradiations*, J. Marfaing, W. Marine, B. Vidal, M. Toulemonde, M. Hage Ali and J.P. Stoquert, *Appl. Surf. Sci.* 46 (1990) 422

## Section 2: Description of material transformation: Thermal spike and/or molecular dynamics calculation

**2020**

*“Thermal Spike” model applied to thin targets irradiated with swift heavy ion beams at few MeV/u*, C. Stodel, M. Toulemonde, C. Fransen, B. Jacquot, E. Clément, G. Frémont, M. Michel and C. Dufour, EPJ Web of Conferences 229(2020)05001

*Prospects of swift heavy ion induced mixing across Pd/Si and Ni/Si interfaces from inelastic thermal spike model calculation*, Paramita Patra, M. Toulemonde, S.K. Srivastava, Nucl. Instr. Meth. B460(2019)104.

**2017**

*An attempt to apply the inelastic thermal spike model to surface modifications of CaF<sub>2</sub> induced by highly charged ions: comparison to swift heavy ions and extension to some others material*, C Dufour, V Khomrenkov, Y Y Wang, Z G Wang, F Aumayr and M Toulemonde J. of Phys; Condens. Matt. 29 (2017) 095001

**2015**

*Tracing temperature in a nanometer size region in a picosecond time period*, K. Nakajima, T. Kitayama, H. Hayashi, M. Matsuda, M. Sataka, M. Tsujimoto, M. Toulemonde, S. Bouffard and K. Kimura, Sci. Rep. 5 (2015)13363

**2014**

*Material transformation: Interaction between nuclear and electronic energy losses*, M. Toulemonde, W. Assmann, Y. Zhang, M. Backman, W.J. Weber, C. Dufour and Z.G. Wang, Proc. Mat. Sci. 7 (2014) 272.

**2013**

*Atomistic simulations of MeV ion irradiation of silica*, M. Backman, F. Djurabekova, O.H. Pakarinen, K. Nordlund, Y. Zhang, M. Toulemonde, W.J. Weber, Nucl. Instr. Meth B 303 (2013) 129

*Molecular dynamics simulations of swift heavy ion induced defect recovery in SiC*, M. Backman, M. Toulemonde, O.H. Pakarinen, N. Juslin, F. Djurabekova, K. Nordlund, A. Debelle, W.J. Weber, Computational Materials Science 67 (2013) 2612

**2012**

*Cooperative effect of electronic and nuclear stopping on ion irradiation damage in silica*, M Backman, F Djurabekova, O H Pakarinen, K Nordlund, Y Zhang, M Toulemonde and W J Weber, J. Phys. D: Appl. Phys. 45 (2012) 505305

*Ion-matter interaction: the three-dimensional version of the thermal spike model. Application to nanoparticle irradiation with swift heavy ions*, Ch Dufour, V Khomenkov, G Rizza and M Toulemonde, J. Phys. D: Appl. Phys. 45 (2012) 065302

**2010**

*Contribution of Electronic Energy Deposition to the Atomic Cascade Damage in Nanocrystals*, M. Backman, F. Djurabekova, O. H. Pakarinen, K. Nordlund and M. Toulemonde Mater. Res. Soc. Proc. 1264 (2010) 179

**2009**

*Temperature and pressure spikes in ion-beam cancer therapy*, M. Toulemonde, E. Surdutovich and A. V. Solov'yov, Phys. Rev. E 80 (2009) 031913

*An inelastic thermal spike model to calculate ion induced desorption yields*, M. Bender, H. Kollmus, H. Reich-Sprenger, M. Toulemonde, W. Assmann, Nucl. Instr. Meth. B 267 (2009) 885

*Behavior of crystalline silicon under huge electronic excitations: A transient thermal spike description*, A. Chettah, H. Kucal, Z.G. Wang, M. Kac, A. Meftah, M. Toulemonde Nucl. Instr. Meth. B 267 (2009) 2719

**2008**

*Sensitivity of ion-induced sputtering to the radial distribution of energy transfers: A molecular dynamics study*, S. Mookerjee, M. Beuve, S.A. Khan, M. Toulemonde and A. Roy, Phys Rev B 78 (2008) 045435

#### 2007

*On the nano-hillock formation induced by slow highly charged ions on insulator surfaces*, C. Lemell a\*, A.S. El-Said b,1, W. Meissl b, I.C. Gebeshuber b, C. Trautmann c, M. Toulemonde d, J. Burgdo" rfer a, F. Aumayr, Solid State Electronics 51 (2007) 1398

#### 2006

*Theoretical and experimental study of electronic temperatures in heavy ion tracks from Auger electron spectra and thermal spike calculations*, M. Caron, H. Rothard, M. Toulemonde, B. Gervais, M. Beuve, Nucl. Instr. Meth. B 245 (2006) 36

*Melting of Au and Al in nanometer Fe/Au and Fe/Al multilayers under swift heavy ions: A thermal spike study*, A. Chettah, Z.G. Wang, M. Kac, H. Kucal, A. Meftah, M. Toulemonde, Nucl. Instr. Meth. B 245 (2006) 150

#### 2004

*Evidence for the ion-induced electronic spike on fs and nm scales from transient field measurements*, K.-H. Speidel, S. Schielke, O. Kenn, J. Leske, D. Hohn, G. Mueller, R. Ernst, N. Gemein, M. Offer, J. Gerber, P. Maier-Komor, and M. Toulemonde, Nucl. Instr. Meth. B 225 (2004) 604

#### 2003

*Influence of the spatial and temporal structure of the deposited-energy distribution in swift-ion-induced sputtering* M. Beuve, N. Stolterfoht, M. Toulemonde, C. Trautmann, Herbert M. Urbassek, Phys. Rev. B 68 (2003) 125423

#### 2000

*Transient thermal processes in heavy ion irradiation of crystalline inorganic insulators*, M. Toulemonde, Ch. Dufour, A. Meftah and E. Paumier, Nucl. Instr. Meth. B166-167 (2000) 903

#### 1999

*Transient thermal process induced by swift heavy ions: Defect annealing and defect creation in Fe and Ni*, Ch. Dufour, Z.G. Wang, E. Paumier and M. Toulemonde, Bull. Mater. Sci. 22 (1999) 671

#### 1998

*A simulation of the temperature distribution in the SPIRAL target*

R. Lichtenhaler, P. Foury, J.C. Angelique, P. Bertrand, B. Blank, O. Bajeat, L. Boy, M. Ducourtieux, P. Jardin, N. Lecesne, A. lepine-Szily, M. Lewitowicz, C. F. Liang, M. Loiselet, H. Lefort, R. Leroy, J. Mandin, C. Marry, L. Maunoury, J. Obert, N. Orr, J.Y. Pacquet, J.C. Putaux, G. Ryckewaert, E. Robert, M.G. Saint-Laurent, P. Sortais, M. Toulemonde, I. Tirrel and A.C.C. Villari, Nucl. Instr. Meth. B140(1998)415

*Defect production and annealing induced by electronic energy loss in pure metal*, Z. G. Wang, Ch. Dufour, M.D. Hou, G.M. Jin, Y.F. Jin, E. Paumier and M. Toulemonde, Nucl. Instr. Meth. B135(1998)265

*Does latent track occurrence in amorphous materials result from a transient thermal process?* M. Toulemonde, Ch. Dufour, E. Paumier and F. Pawlak, Mat. Res. Symp. Proc. 504 (1998) 99

#### 1997

*Graphite target for the SPIRAL project*, J. C. Putaux, P. Bertrand, M. Ducourtieux, A. Ferro, P. Foury, O. Kaitasov, L. Kotfila, N. Lecesne, R. Leroy, C.F. Liang, M. Loiselet, J. Mandin, L. Mauroury, A.C. Mueller, J. Obert, J.Y. Pacquet, N. Pauwels, J.C. Potier, J. Proust, E. Robert, M.O. Ruault, G. Ryckewaert, P. Sortais, M. Toulemonde and A.C.C. Villari, , Nucl. Instr. Meth. B 126 (1997) 113

*Thermal spike description of the damage creation in  $Y_3Al_5O_{12}$  induced by swift heavy ions*, A. Meftah, M. Djebara, N. Khalfaoui, J. P. Stoquert, F. Studer and M. Toulemonde Mat. Science Forum 248-249 (1997) 53

*Thermal spike model applied to the irradiated yttrium iron garnet: Mean diffusion length of the energy deposited on the electrons*, A. Meftah, J.M. Costantini, M. Djebara, N. Khalfaoui, J.P. Stoquert, F. Studer and M. Toulemonde, Nucl. Instr. Meth. B 122 (1997) 470

*Electron-phonon coupling and the sensitivity of metals to irradiation with swift heavy ions*, Ch. Dufour, E. Paumier and M. Toulemonde, Nucl. Instr. Meth. B 122 (1997) 445

*Do irradiation effects in metals induced by high energy heavy ions correspond to thermal spike effects?* Z.G. Wang and M. Toulemonde, Tenth National conf. of Nuclear Physics, J. of Qingdao University (1997) 384

*A thermal spike model for nanophase formation in yttrium iron garnet under swift heavy ion beams*, J.M. Costantini, F. Brisard, M. Toulemonde and F. Studer, Nucl. Instr. Meth. B 122 (1997) 514

### 1996

*Atomic and cluster ion bombardement in the electronic stopping power regime: A thermal spike description*, M. Toulemonde, Ch. Dufour, Z.G. Wang and E. Paumier, Nucl. Instr. Meth. B 112 (1996) 26

*Track creation in SiO<sub>2</sub> and BaFe<sub>12</sub>O<sub>19</sub> by swift heavy ions: a thermal spike description*, M. Toulemonde, J.M. Costantini, Ch. Dufour, A. Meftah, E. Paumier and F. Studer, Nucl. Instr. Meth. B 116 (1996) 37

*Sensitivity of metallic materials under irradiation with swift heavy ions*, Ch. Dufour, Z.G. Wang, M. Levalois, P. Marie, E. Paumier, F. Pawlak and M. Toulemonde, Nucl. Instr. Meth. B 107 (1996) 218

### 1995

*Experience with ISOLDE molten metal targets at the CERN PS-booster*, J. Lettry, R. Catherall, P. Drumm, A. Evensen, O. Jonsson, E. Kluger, J. Obert, J. C. Putaux, J. Sauvage, H. Ravn, M. Toulemonde and the ISOLDE collaboration, ICANS-XII PSI Villangen Suisse (1995) PSI PROCEEDINGS 95-02

*Errata: on The Se sensitivity of metals under swift-heavy-ion irradiation: a transient thermal process*, Z.G. Wang, Ch. Dufour, E. Paumier and M. Toulemonde, J. Phys.: Condens. Matt. 7 (1995) 2525

### 1994

*The Se sensitivity of metals under swift-heavy-ion irradiation: a transient thermal process*, Z.G. Wang, Ch. Dufour, E. Paumier and M. Toulemonde, J. Phys.: Condens. Matt. 6 (1994) 6733

### 1993

*A high resistivity phase induced by swift heavy ion irradiation of Bi: a probe for thermal spike damage*, Ch. Dufour, A. Audourd, F. Beuneu, J. Dural, J.P. Girard, A. Hairie, M. Levalois, E. Paumier and M. Toulemonde, J. Phys.: Condens. Matt. 5 (1993) 4573

*Thermal spike Model in the electronic stopping power regime*, M. Toulemonde, E. Paumier and Ch. Dufour, Rad. Eff. Def. Sol. 126 (1993) 201

*A transient thermodynamic model for track formation in amorphous metallic alloys*, Ch. Dufour, E. Paumier and M. Toulemonde, Rad. Eff. Def. Sol. 126 (1993) 119

### 1992

*Transient thermal process after a high-energy heavy-ion irradiation of amorphous metals and semiconductors*, M. Toulemonde, Ch. Dufour and E. Paumier, Phys. Rev. B 46 (1992) 14362

*A transient thermodynamic model for track formation in amorphous semi-conductor: a possible mechanism?* C. Dufour, B. Lesellier de Chezelles, V. Delignon, M. Toulemonde and E. Paumier, Proc. "On chemical and physical modifications induced by irradiation in glasses", Ed. P. Mazzoldi, E-MRS Strasbourg (1992)61

### 1979

**1981**

*Calculation of the temperature during electron pulse annealing of silicon*, M. Toulemonde and P Siffert, Appl. Phys. 25 (1981 )139

**1979**

*Calculated Temperature Distribution During Laser Annealing in Silicon and Cadmium Telluride*, R. O. Bell, M. Toulemonde, P. Siffert, Appl. Phys. 19 (1979) 313

**1978**

*Effects of ruby laser pulses on virgin and amorphous silicon surface layers*, R.O. Bell, J.C. Muller, M. Toulemonde, R. Stuck and P. Siffert, AIP Conference Proceedings, no.50 (1978) 299

### Section 3: Atomic physics: channeling and energy loss

#### 2011

*Measurements of high energy loss rates of fast highly charged U ions channeled in thin silicon crystals*, C. Ray, A. Brauning-Demian, H., M. Chevallier, C. Cohen, D. Dauvergne, A. L'Hoir, C. Kozhuharov, D. Liessen, P.H. Mokler, J.C. Poizat, T. Stohlker, E. Testa and M. Toulemonde Phys. Rev. B 84 (2011) 02411

#### 2009

*Study of ion emission from a germanium crystal surface under impact of fast Pb ions in channeling conditions*, A. L'Hoir, C. Koumeir, S. Della Negra, P. Boduch, P. Roussel-Chomaz, A. Cassimi, M. Chevallier, C. Cohen, D. Dauvergne, M. Fallavier, D. Jacquet, B. Manil, J.-C. Poizat, C. Ray, H. Rothard, D. Schmaus, M. Toulemonde, Nucl. Instr. Meth. B 267 (2009) 876

#### 2007

*Using channeling properties for studying the impact-parameter dependence of electron capture by 20-MeV/u uranium ions in a silicon crystal*, E. Testa, P. N. Abufager, F. Bosch, A. Bräuning-Demian, H. Bräuning, M. Chevallier, C. Cohen, D. Dauvergne, A. Gumberidze, A. L'Hoir, R. Kirsch, C. Kozhuharov, D. Liesen, P. H. Mokler, J. C. Poizat, C. Ray, R. D. Rivarola, J. P. Rozet, Th. Stöhlker, S. Toleikis, M. Toulemonde, D. Vernhet, and P. Verma, Phys. Rev. A 76 (2007) 062901

#### 2006

*Ion slowing down and charge exchange at small impact parameters selected by channeling: Superdensity effects*, A. L'Hoir, L. Adoui, F. Barrue, A. Billebaud, F. Bosch, A. Brauning-Demian, H. Brauning, A. Cassimi, M. Chevallier, C. Cohen, D. Dauvergne, C.E. Demonchy, L. Giot, R. Kirsch, A. Gumberidze, C. Kozhuharov, D. Liesen, W. Mittig, P.H. Mokler, S. Pita, J.-C. Poizat, C. Ray, P. Roussel-Chomaz, H. Rothard, J.-P. Rozet, Th. Stohlker, M. Tarisien, E. Testa, S. Toleikis, M. Toulemonde, D. Vernhet, Nucl. Instr. Meth. B 245 (2006) 1

*Electron gas polarization effect induced by heavy H-like ions of moderate velocities channeled in a silicon crystal*, E. Testa, D. Dauvergne, A. Brauning-Demian, F. Bosch, H. Brauning, M. Chevallier, C. Cohen, A. Gumberidze, S. Hagmann, A. L'Hoir, R. Kirsch, C. Kozhuharov, D. Liesen, P.H. Mokler, J.-C. Poizat, C. Ray, J.-P. Rozet, Th. Stohlker, S. Toleikis, M. Toulemonde, P. Verma, Nucl. Instr. Meth. B 245 (2006) 47

*Impact parameter dependent charge exchange studies with channeled heavy ions*, D. Dauvergne, M. Chevallier, J.-C. Poizat, C. Ray, E. Testa, A. Bräuning-Demian, F. Bosch, S. Hagmann, C. Kozhuharov, D. Liesen, P.H. Mokler, Th. Stöhlker, M. Tarisien, P. Verma, C. Cohen, A. L'Hoir, J.-P. Rozet, D. Vernhet, H. Bräuning, and M. Toulemonde, Proceedings of the XXIV International Conference on Photonic, Electronic and Atomic Collisions, (Rosario, Argentina, 20-26 July 2005), Editors P. D. Fainstein, M.A.P.Lima, J.E. Miraglia, E.C. Montenegro, R. Rivarola, World Scientific (Singapore) p. 539 (2006)

#### 2004

*Electron emission induced by fast heavy ions in a thin silicon crystal*, F. Barrué, M. Chevallier, D. Dauvergne, R. Kirsch, J.-C. Poizat, C. Ray, L. Adoui, A. Cassimi, H. Rothard, M. Toulemonde, C. Cohen, A. L'Hoir, D. Vernhet, C. Demonchy, L. Giot, W. Mittig, S. Pita, P. Roussel-Chomaz and A. Billebaud, Phys. Rev. A 70(2004) 032902

#### 2003

*The influence of energy density inside the nuclear track on the secondary-ion emission*, R. Neugebauer, T. Jalowy, J.A.M. Pereira, E.F. da Silveira, H. Rothard, M. Toulemonde and K.O. Groeneveld, Nucl. Instr. Meth. B 209 (2003) 62

*Transverse cooling and heating in ion channelling* F. Grüner, W. Assmann, F. Bell, M. Schubert, J. U. Andersen, S. Karamian, A. Bergmaier, G. Dollinger, L. Goergens, W. Guenther and M. Toulemonde, Phys. Rev. B 68 (2003) 174414

*Impact parameter dependent electron capture by decelerated  $U_{91+}$  ions at 20 MeV/u using crystal channelling conditions*, D. Dauvergne, A. Brauning-Demian, F. Bosch, H. Brauning, M. Chevallier, C. Cohen, A. Gumberidze, A. L'Hoir, R. Kirsch, C. Kozhuharov, D. Liesen, P.H. Mokler, J.C. Poizat, C. Ray, Th. Stohlker, M. Tarisien, E. Testa, S. Toleikis and M. Toulemonde, Nucl. Instr. Meth. B 205 (2003) 773

*Electronic thermal spike effects in intermixing of bilayers induced by swift heavy ions*, Z.G. Wang, C. Dufour, S. Euphrasie and M. Toulemonde, Nucl. Instr. Meth. B 209 (2003) 194

## 2002

*Stopping powers of Al, Havar, Ni, Ti, Ta media for 9.67 MeV/u  $^{58}\text{Ni}$  and 9.5 MeV/u  $^{18}\text{O}$  ions*, A. Hakim, A. Fahli, M. Toulemonde and D. Lelièvre, Nucl. Instr. Meth. B 187 (2002) 164

*Total charge-changing and partial cross-section measurements in the reactions of ~110-250 MeV/nucleon in paraffin and water.*, A.N. Golovchenko, J. Skvarc, N. Yasuda, M. Giacomelli, S. P. Tretyakova, R. Ilic, R. Bimbot, M. Toulemonde and T. Murakami, Phys. Rev. C 66 (2002) 014609+C 66 (2002) 039901

## 2000

*X-rays and inner-shell processes with heavy ions channeled in thin crystals*, D. Dauvergne, M. Chevallier, C. Cohen, N. Cue, J. Dural, R. Kirch, A. L'Hoir, D. Lelièvre, P.H. Mokler, J.C. Poizat, T.H. Prinz, J. M. Ramillon, J. Remillieux, P. Roussel-Chomaz, J. P. Rozet, F. Sanuy, D. Schmaus, C. Stephan, M. Toulemonde, D. Vernhet and A. Warczak, AIP-proceeding 506 (2000) 418

*Upper limit determination of the resonant trielectronic recombination cross section for krypton using crystal channelling*, M. Chevallier, C. Cohen, N. Cue, D. Dauvergne, J. Dural, P. Gangnan, R. Kirsch, A. L'hoir, D. Lelièvre, J. F. Libin, P. H. Mokler, J. C. Poizat, H. T. Prinz, J. M. Rammillon, J. Remimmieux, P. Roussel-Chomaz, J. P. Rozet, F. Sanuy, D. Schmaus, C. Stephan, M. Toulemonde, D. Vernhet and A. Warczak, Phys. Rev. A 61 (2000) 022724

## 1999

*Charge states and energy loss of 300-MeV/u  $U_{73+}$  ions channeled in a silicon crystal*, D. Dauvergne, C. Scheidenberger, A. L'Hoir, J. U. Andersen, S. Andriamonje, C. Böckstiegel, M. Chevallier, C. Cohen, N. Cue, S. Czajkowski, J. S. Forster, H. Geissel, H. Irnich, T. Kandler, R. Kirsch, A. Magel, P. H. Mokler, G. Münzenberg, F. Nickel, Yu. L. Pivovarov, J-C. Poizat, M. F. Politis, J. Remillieux, D. Schmaus, Th. Stöhlker, T. Suzuki, and M. Toulemonde, Phys. Rev. A 59 (1999) 2813

## 1997

*Channeling experiment with a cooled and decelerated H-like gold ion beam extracted from storage ring*  
S. Andriamonge, K. Beckert, M. Chevallier, C. Cohen, D. Dauvergne, J. Dural, H. Eickhoff, B. Franzke, H. Geissel, R. Kirsch, A. L'Hoir, P.H. Mokler, R. Moshhammer, F. Nickel, F. Nolden, J.C. Poizat, H.T. Prinz, H. Reich, J. Remillieux, F. Sanuy, C. Scheidenberger, D. Schmaus, M. Steck, Th. Stöhlker and M. Toulemonde, J. Phys. B: Mol. Opt. Phys. 30 (1997) 5099

*Probing a cooled beam of decelerated highly-charged heavy ions extracted out of the ESR by a channeling experiment*, H. Th. Prinz, D. Dauvergne, S. Andriamonje, K. Beckert, M. Chevallier, C. Cohen, J. Dural, H. Eickhoff, B. Franzke, H. Geissel, R. Kirsch, A. L'Hoir, P.H. Mokler, R. Moshhammer, F. Nickel, F. Nodlen, J.C. Poizat, H. Reich, J. Remilleux, F. Sanuy, C. Scheidenberger, D. Schmaus, M. Steck, Th. Stöhlker and M. Toulemonde, Hyperfine Interactions 108 (1997) 325

## 1996

*K-shell radiative electron capture with bare 60 MeV/u Kr ions channeled in a Si crystal : Experiments and simulations*, S. Andriamonje, M. Chevallier, C. Cohen, N. Cue, D. Dauvergne, J. Dural, F. Fujimoto, R. Kirsch, A. L'Hoir, J.C. Poizat, Y. Quéré, J. Remilleux, C. Röhl, H. Rothard, J.P. Rozet, D. Schmaus, M. Toulemonde and D. Vernhet, Phys. Rev. A 54 (1996) 2

*Influence of intrashell excitation ( $n=2$ ) on the population of the metastable states of H- and He-like krypton ions in channeling conditions*, S. Andriamonje, M. Chevallier, C. Cohen, N. Cue, D. Dauvergne, J. Dural, F. Fujimoto, R. Kirsch, A. L'Hoir, J.C. Poizat, Y. Quéré, J. Remilleux, C. Röhl, H. Rothard, J.P. Rozet, D. Schmaus, M. Toulemonde and D. Vernhet, Nucl. Instr. Meth. B 107 (1996) 1

## 1994

*Electronic capture and excitation of highly charged channeled ions*, S. Andriamonje, B. Blank, R. Del Moral, J.P. Dufour, J. Dural, L. Faux, A. Fleury, M.S. Pravikoff, C. Röhl, M. Chevallier, D. Dauvergne, R. Kirsch, J.C. Poizat, J.



Remillieux, C. Cohen, Y. Girard, A. L'Hoir, J. P. Rozet, D. Schmaus, D. Vernhet, J. Dural, H. Rothard and M. Toulemonde, Nucl. Instr. Meth. B 87 (1994) 116

### 1993

*Channeling of swift heavy ions*, D. Schmaus, S. Andriamonge, M. Chevallier, C. Cohen, N. Cue, D. Dauvergne, J. Dural, R. Genre, Y. Girard, K.O. Groeneveld, J. Kemmler, R. Kirsch, A. L'Hoir, J. Moulin, J.C. Poizat, Y. Quéré, J. Remillieux and M. Toulemonde, Rad. Eff. Def. Sol 126 (1993) 313

### 1992

*RTE measurement with Xe<sub>52+</sub> ions channeled in a Si crystal*, S. Andriamonje, M. Chevallier, C. Cohen, N. Cue, D. Dauvergne, J. Dural, R. Genre, Y. Girard, R. Kirsch, A. L'Hoir, J.C. Poizat, Y. Quéré, J. Remillieux, D. Schmaus and M. Toulemonde, Phys. Lett. A 164 (1992) 184

### 1991

*GeV Xe ion Channeled through Si crystal*, Y. Quéré, S. Andriamonje, M. Chevallier, C. Cohen, N. Cue, D. Dauvergne, J. Dural, R. Genre, Y. Girard, R. Kirsch, A. L'Hoir, J.C. Poizat, J. Remillieux, D. Schmaus and M. Toulemonde, Rad. Eff. Def. Sol 117 (1991) 63

### 1990

*Impact parameter dependence of energy loss and target-electron-induced ionization for 27 MeV/u Xe<sub>35+</sub> incident ions transmitted in (110) Si channels*, A. L'Hoir, S. Andriamonje, R. Anne, N.V. De Castro Faria, M. Chevallier, C. Cohen, J. Dural, M.J. Gaillard, R. Genre, M. Hage-Ali, R. Kirsch, B. Farizon-Mazuy, J. Mory, J. Moulin, J.C. Poizat, Y. Quéré, J. Remillieux, D. Schmaus and M. Toulemonde, Nucl. Instr. Meth. B 48 (1990) 145

### 1989

*Electron-impact ionization and energy loss of 27-MeV/u Xe<sub>35+</sub> incident ions channeled in silicon*, S. Andriamonje, R. Anne, N.V. De Castro Faria, M. Chevallier, C. Cohen, J. Dural, M.J. Gaillard, R. Genre, M. Hage-Ali, R. Kirsch, B. Farizon-Mazuy, A. L'Hoir, J. Mory, J. Moulin, J.C. Poizat, Y. Quéré, J. Remillieux, D. Schmaus and M. Toulemonde, Phys. Rev. Lett. 63 (1989) 1930

Experimental aspects of SHIC (swift heavy ion channeling), S. Andriamonje, R. Anne, N.V. De Castro Faria, M. Chevallier, C. Cohen, J. Dural, M.J. Gaillard, R. Genre, M. Hage-Ali, R. Kirsch, B. Farizon-Mazuy, A. L'Hoir, J. Mory, J. Moulin, J.C. Poizat, Y. Quéré, J. Remillieux, D. Schmaus and M. Toulemonde, Rad. Eff. Def. Sol. 110 (1989) 167

*Radiative electron capture by fast highly stripped heavy ions channeled in a thin crystal*, S. Andriamonje, R. Anne, N.V. De Castro Faria, M. Chevallier, C. Cohen, J. Dural, M.J. Gaillard, R. Genre, M. Hage-Ali, R. Kirsch, B. Farizon-Mazuy, A. L'Hoir, J. Mory, J. Moulin, J.C. Poizat, Y. Quéré, J. Remillieux, D. Schmaus and M. Toulemonde, J. de Phys. Colloque 50(1989)285

### 1987

Observation of radiative electron capture into K, L, M shells of 25-MeV/u Xe<sub>53+</sub> ions channeled in silicon, S. Andriamonje, M. Chevalier, C. Cohen, J. Dural, M.J. Gaillard, R. Genre, M. Hage-Ali, R. Kirsch, A. L'Hoir, B. Mazuy, J. Mory, J. Moulin, J.C. Poizat, J. Remillieux, D. Schmaus and M. Toulemonde, Phys. Rev. Lett. 59 (1987) 2271

### 1986

*Energy loss straggling of protons and He ions in gold from 0.1 to 1.0 MeV/u*, J.P. Stoquert, M. Hage-Ali, P. Siffert and M. Toulemonde, Rad. Eff. 97 (1986) 37

### 1985

*Channeling of 2.4 GeV Ar ions in silicon crystal*, C. Cohen, J. Dural, M.J. Gaillard, R. Genre, J.J. Grob, M. Hage-Ali, R. Kirsh, A. L'Hoir, J. Mory, J.C. Poizat, Y. Quéré, J. Remillieux, D. Schmaus, M. Toulemonde J. Phys. 46 (1985) 1565

### 1977

*Systematic dependence of the slowing-down environment on nuclear lifetime measurements by the Doppler-shift attenuation method*, M. Toulemonde and F. Haas, Phys. Rev. C 15 (1977) 49

#### Section 4: Characterization of materials for solar energy and nanosecond laser pulse transformation

##### 1986

*Transfer of a metal from a transparent film to the surface of silicon to produce p-n junction solar cells*, M. Toulemonde, J.C. Muller, R. Stuck, Transactions ASME J. Solar Ener. Engin. 108 (1986) 102

##### 1985

*Time-resolved reflectivity and melting depth measurements using pulsed ruby laser on silicon*, M. Toulemonde, S. Unamuno, R. Heddache, M.O. Lampert, M. Hage-Ali and P. Siffert, Appl. Phys. A 36 (1985) 31

*Hydrogen content of amorphous silicon films deposited in a multipole plasma*, B. Drevillon and M. Toulemonde, J. Appl. Phys. 58 (1985) 535

*Some problems arising in hydrogen passivation of silicon by ionbombardment techniques*, J.C. Muller, Y. Ababou, A. Baghdadi, A. Mesli, M. Toulemonde and P. Siffert, Nucl. Instr. Meth. B7/8 (1985) 304

##### 1984

*Direct measurement of the maximum depth phase change of crystal silicon under pulsed laser irradiation*, M. Toulemonde, R. Heddache, F. Nielsen and P. Siffert, J. of Appl. Phys. 56 (1984) 1878

*Transport properties of hydrogenated and chlorinated amorphous silicon: correlation with infrared transmission spectra*, S. Al Dallal, S. Kalem, J. Bourneix, J. Chevallier and M. Toulemonde, Phil. Mag. B 50 (1984) 493

*Depth measurement of the phase change under pulsed ruby laser annealing*, M. Toulemonde, R. Heddache, F. Nielsen and P. Siffert, J. de Phys. 44 (1984) 83

*Physicochemical properties of the amorphous Si-As-H films prepared by RF sputtering*, J.C. Bruyere, M. Toulemonde and D. Jousse, Poly-Micro-Crystalline and Amorphous Semiconductors, p. 469, Pinard, P. (ED), Kalbitzer, S. (ED)(1984)

*Hydrogen ion passivation of silicon. Distribution of hydrogen and cells improvement*, Y. Ababou, A. Grob, J.C. Muller, A. Slaoui, J.P. Stoquert, R. Stuck, M. Toulemonde, T. Zundel and P. Siffert, Poly-Micro-Crystalline and Amorphous Semiconductors, p. 121, Pinard, P. (ED), Kalbitzer, S. (ED) (1984) Editions de Phys., Les Ulis, France

*Melting model for UV lasers*, S. Unamuno, M. Toulemonde and P. Siffert, Laser processing and diagnostics (Springer Verlag 1984) 35

##### 1983

*A model for laser induced diffusion* E. Fogarassy, R. Stuck, M. Toulemonde, D. Salles and P. Siffert, J. Appl. Phys. 54 (1983) 5059

*Influence of hydrogen and residual disorder on the optical and electrical properties of microcrystalline silicon*, N. Ababou, E. Bustarret, A. Deneuve and M. Toulemonde, J. Non-Cryst. Sol. 59/60 (1983) 803

*Alloying effects on the optical absorption edge of glow-discharge a-Si/sub 1-x/Ge/sub x/:H*, L. Chahed, C. Senemaud, M.L. Theye, J. Bullot, M. Galin, M. Gauthier, B. Bourdon and M. Toulemonde, Sol. St. Com. 45 (1983) 649

*Electrical versus structural properties of polycrystalline silicon deposited by plasma enhanced LPCVD at a temperature below 550°*, N. Ababou, C. Chaussat, A. Deneuve, L. Brunel and M. Toulemonde, Proceedings of the 4th European Conference on Chemical Vapour Deposition, p. 206-10, Bloem, J. (ED), Verspui, G. (ED), Wolff, L.R. (ED)(1983)

##### 1982

*Pulsed laser annealing of RF sputtered amorphous Si-H films doped with arsenic*, E. Fogarassy, R. Stuck, M. Toulemonde, J.C. Bruyere and P. Siffert J. of Appl. Phys. 53 (1982) 3261

**1981**

*Interaction between arsenic, hydrogen, and silicon matrix indoping of sputtered amorphous hydrogenated silicon*, M. Toulemonde, P. Siffert, A. Deneuveille and J.C. Bruyere, Appl. Phys. Lett. 39 (1981) 154

*Reflectance of silicon surfaces after high dose rate molecular ion implantation*, M.O. Lampert, M. Hage-Ali, J.C. Muller, M. Toulemonde and P. Siffert, Nucl. Instr. and Meth. 182/183 (1981) 595

*Interaction between argon and dopants in sputtered a-Si:H*, M. Toulemonde, J.J. Grob, J.C. Bruyere, A. Deneuveille, H. Hamdi and P. Siffert, J. de Phys. Colloque, 42 (1981) 799

*Solar cells realized by laser induced diffusion of dopants deposited on silicon surface*, , E. Fogarassy, R. Stuck, J.C. Muller, M. Hodeau, A. Wattiaux, M. Toulemonde and P. Siffert, Third E.C. Photovoltaic Solar Energy Conference, p. 639-45, Palz, W. (ED)(1981)

*Physicochemical effect of doping in sputtered a-Si:H*, , A. Deneuveille, J.C. Bruyere, M. Toulemonde, J.J. Grob and P. Siffert, , AIP Conference Proceedings, 73 (1981) 120

*Recrystallization of silicon by pulsed annealing electrons*, M. Toulemonde P. Siffert, Appl. Phys. 25 (1981) 139

**1980**

*Recrystallization of silicon by pulsed lasers*, J.C. Muller, C. Scharager, M. Toulemonde and P. Siffert, Revue de Phys. Appl. 15 (1980) 865

*Determination of carbon in EFG silicon ribbons by nuclear techniques and SIMS*, M. Toulemonde M. Hage-Ali, R. Stuck, P. Siffert, F. Wald and R.O. Bell Nucl. Instr. Meth. 168 (1980) 415.

*Recrystallization of silicon by pulsed lasers*, J. C. Muller, C. Scharager, M. Toulemonde and P. Siffert, Rev. Phys. Appl. 41 (1980) 239

## Section 5: Nuclear structure

### 2019

*Lifetime measurements in  $^{52,54}\text{Ti}$  to study shell evolution toward  $N = 32$* , A. Goldkuhle, C. Fransen, A. Blazhev, M. Beckers, B. Birkenbach, T. Braunroth, E. Clément, A. Dewald, J. Dudouet, J. Eberth, H. Hess, B. Jacquot, J. Jolie, Y.-H. Kim, A. Lemasson, S. M. Lenzi, H. J. Li, J. Litzinger, C. Michelagnoli, C. Müller-Gatermann, B. S. Nara Singh, R. M. Pérez-Vidal, D. Ralet, P. Reiter, A. Vogt, N. Warr, K. O. Zell, A. Ataç, D. Barrientos, C. Barthe-Dejean, G. Benzoni, A. J. Boston, H. C. Boston, P. Bourgault, I. Burrows, J. Cacitti, B. Cederwall, M. Ciemala, D. M. Cullen, G. De France, C. Domingo-Pardo, J.-L. Foucher, G. Fremont, A. Gadea, P. Gangnant, V. González, J. Goupil, C. Henrich, C. Houarner, M. Jean, D. S. Judson, A. Korichi, W. Korten, M. Labiche, A. Lefevre, L. Legeard, F. Legruel, S. Leoni, J. Ljungvall, A. Maj, C. Maugeais, L. Ménager, N. Ménard, R. Menegazzo, D. Mengoni, B. Million, H. Munoz, D. R. Napoli, A. Navin, J. Nyberg, M. Ozille, Zs. Podolyak, A. Pullia, B. Raine, F. Recchia, J. Ropert, F. Saillant, M. D. Salsac, E. Sanchis, C. Schmitt, J. Simpson, C. Spitaels, O. Stezowski, Ch. Theisen, M. Toulemonde, M. Tripon, J.-J. Valiente Dobón, G. Voltolini, and M. Zielinska, *Phys Rev C*100(2019)054317

### 2002

*Nuclear fission time measurements as function of excitation energy: a crystal blocking experiment*, F. Barrué, S. Basnary, A. Chbihi, M. Chevallier, C. Cohen, D. Dauvergne, H. Ellmer, J. Frankland, D. jacquet, R. kirsch, P. Lautesse, A. L'Hoir, M. Morjean, J. C. Poizat, C. Ray and M. Toulemonde, *Nucl. Instr. Meth. B* 193 (2002) 852

*Total charge-changing and partial cross-section measurements in the reactions of  $\sim 110$ -250 MeV/nucleon in paraffin and water.*, A.N. Golovchenko, J. Skvarc, N. Yasuda, M. Giacomelli, S. P. Tretyakova, R. Ilic, R. Bimbot, M. Toulemonde and T. Murakami, *Phys. Rev. C* 66 (2002) 014609+C 66 (2002) 039901

### 2000

*Investigation of fission time distributions by the blocking technique in single crystals*, M. Morjean, M. Chevallier, C. Cohen, D. Dauvergne, J. Dural, J. Galin, F. Goldenbaum, D. Jacquet, R. Kirsch, E. Lienard, B. Lott, A. Peghaire, Y. Perier, J.C. Poizat, G. Prevot, J. Remillieux, D. Schmaus and M. Toulemonde, Proceedings of the IV<sup>th</sup> international conference on dynamical aspects of nuclear fission, Casta-Papiernika, Slovaquie, Ed. World Scientific, p.254, (2000).

### 1999

*Fission Time Evolution with Excitation Energy from a Crystal Blocking Experiment*, F. Goldenbaum, M. Morjean, J. Galin, E. Liénard, B. Lott, Y. Périer, M. Chevallier, D. Dauvergne, R. Kirsch, J. C. Poizat, J. Remillieux, C. Cohen, A. L'Hoir, G. Prévot, D. Schmaus, J. Dural, M. Toulemonde, and D. Jacquet, *Phys. Rev. Lett.* 82 (1999) 5012 and erratum *Phys. Rev. Lett.* 83 (1999) 2094

### 1998

*Fission lifetime measured by the blocking technique as a function of the excitation energy in the  $^{24}\text{A. MeV } ^{238}\text{U} + ^{28}\text{Si}$  reaction*, M. Morjean, M. Chevallier, C. Cohen, D. Dauvergne, J. Dural, J. Galin, F. Goldenbaum, D. Jacquet, R. Kirsch, E. Lienard, B. Lott, A. Peghaire, Y. Perier, J. C. Poizat, G. Prevot, J. Remillieux, D. Schmaus and M. Toulemonde, *Nucl. Phys. A* 630 (1998) 200

*Direct fission lifetime measurements as a function of temperature and fission charge asymmetry*, F. Goldenbaum, M. Morjean, M. Chevallier, C. Cohen, D. Dauvergne, J. Dural, J. Galin, D. Jacquet, R. Kirsch, E. Lienard, B. Lott, A. Peghaire, Y. Perier, J.C. Poizat, G. Prevost, J. Remilleux, D. Schmaus, M. Toulemonde, Proceedings of the XXXVI Int. Winter Meeting on Nuclear Physics, Bormio, Italy, *Ricerca Scientifica ed Educazione Permanente* 112 (1998) 265.

*A direct determination of fission lifetimes as a function of excitation energy by the blocking technique*, M. Morjean, M. Chevallier, C. Cohen, D. Dauvergne, J. Dural, J. Galin, F. Goldenbaum, D. Jacquet, R. Kirsch, E. Lienard, B. Lott, A. Peghaire, Y. Perier, J.C. Poizat, G. Prevot, J. Remillieux, D. Schmaus, M. Toulemonde, 6th International School Seminar on Heavy Ion Physics, Dubna, Ed World Scientific: Heavy Ion Physics, p. 683, (1998).

### 1990

*Measurements of time delays for projectile-like fragments in action  $^{40}\text{Ar} + \text{Ge}$  at 44 MeV/nucleon*, J. Gomez del Campo, J. Barrette, R. Dayras, J. P. Wieleczko, E.C. Pollacco, F. Saint-Laurent, M. Toulemonde, N. Neskovic and R. Ostojic, *Phys. Rev. C* 41 (1990) 139

**1982**

*The g-factor of the yrast  $4_+$  in  $^{20}\text{Ne}$  from transient-field precession measurements*, K. H. Speidel, P.N. Tandon, V. Mertens, W. Trolenberg, G.J. Kumbartzki, N. Ayres De Campos, M.B. Goldberg, J. Gerber and M. Toulemonde, Nucl. Phys. A 378 (1982) 130

**1980**

*Lifetime and  $E0$  decay of the first excited  $0_+$  state in  $^{14}\text{C}$* , M. Toulemonde, K.H. Souw, J.C. Adloff and N. Schulz, Phys. Rev. C 22 (1980) 553

*Unusually weak  $E1$  transitions in  $^{45}\text{Ti}$* , A. Chevallier, J. Chevallier B. Haas, N. Schulz, M. Toulemonde J. Phys. 41 (1980) 239

**1979**

*High-spin states in  $^{50}\text{Ti}$ ,  $^{52}\text{Cr}$  and  $^{54}\text{Fe}$* , J. Styczen, E. Bozek, T. Pawlat, Z. Stachura, F.A. Beck, C. Gehringer, B. Haas, J.C. Merdinger, N. Schulz, P. Taras, M. Toulemonde, J.P. Vivien and A. Muller-Arnke, Nucl. Phys. A 327 (1979) 295

*Experimental evidence for lying intruder states in  $^{54}\text{Mn}$* , M. Toulemonde, F.A. Beck, C. Gehringer, B. Haas, J.C. Merdinger, N. Schulz and J.P. Vivien, J. of Phys. G 5 (1979) 819

*Unusually weak  $E1$  transition in  $^{45}\text{Ti}$* , A. Chevallier, J. Chevallier, B. Haas, N. Schulz and M. Toulemonde, J. de Phys. A 327 (1979) 295

**1978**

*Lifetimes of the first and second excited states in  $^{41}\text{Ca}$  using the  $^2\text{H}(^{40}\text{Ca},\text{H})^{41}\text{Ca}$  inverse reaction*, F. A. Beck, T. Byrski, M. Toulemonde and J.P. Vivien, Phys. Rev. C 17 (1978) 1895

*High-spin neutron particle-hole states in even  $N=28$  isotones*, B. Haas, F.A. Beck, C. Gehringer, J.C. Merdinger, N. Schulz, P. Taras, M. Toulemonde, J.P. Vivien, J. Styczen, E. Bozek, Z. Stachura, T. Pawlat and A. Muller-Arnke, Phys. Rev. Lett. 40(1978)1316

*Study of the  $E_{cm}=12.8$  MeV resonance in the  $^{12}\text{C}+^{16}\text{O}$  system via the  $^8\text{Be}+^{20}\text{Ne}$  exit channel*, D. Disdier, B. Haas, S.M. Lee, J.C. Merdinger, V. Rauch, F. Scheibling, Y. Schutz, M. Toulemonde and J.P. Vivien, AIP Conference Proceedings, no.47 (1978) 590

**1977**

*High spin states in the mirror nuclei  $^{15}\text{O}$  and  $^{15}\text{N}$* , L. Kraus, I. Linck, J.C. Sens, M. Toulemonde, Nucl. Instr. and Meth. 146 (1977) 312

*Spin and g factor of the 40-keV level in  $^{45}\text{Ti}$* , J. Styczen, A. Chevallier, J. Chevallier, B. Haas, N. Schulz and , Phys. Rev. C 15 (1977) 1704

**1976**

*Survey of electromagnetic properties of positive parity states in odd  $1f_{7/2}$  shell nuclei*, J. Styczen, J. Chevallier, B. Haas, N. Schulz, P. Taras and M. Toulemonde, Nucl. Phys. A 262 (1976) 317

*Gamma decays of positive parity states in  $^{45}\text{Sc}$* , M. Toulemonde, J. Chevallier, B. Haas, N. Schulz and J. Styczen, Nucl. Phys. A 262 (1976) 307

*Properties of the low-lying negative parity states in  $^{45}\text{Sc}$* , J. Chevallier, B. Haas, N. Schulz and M. Toulemonde, J. de Phys. 37 (1976) 303

*Recoil-distance lifetime measurements of states in  $^{47}\text{V}$  and  $^{47}\text{Ti}$  induced by heavy-ion reactions*, M. Toulemonde, N. Schulz, J.C. Merdinger and P. Engelstein, Phys. Rev. C 13 (1976) 1889

*Recoil-distance lifetime measurement in  $^{37}\text{Cl}$  [via  $^{27}\text{Al}(^{12}\text{C},2p)^{37}\text{Cl}$ ]*, J.C. Merdinger, N. Schulz and M. Toulemonde, J. de Phys. 37 (1976) 1

#### 1975

*Consistency of the recoil-distance method and the Doppler-shift attenuation method for lifetime*, B. Haas, J. Chevallier, N. Schulz, J. Styczen and M. Toulemonde, Phys. Rev. C 11 (1975) 280

*Magnetic moment of the  $d_{3/2}$  hole state in  $^{48}\text{Ti}$* , B. Haas, A. Chevallier, J. Chevallier, C. Gehringer, J.C. Merdinger, N. Schulz, J. Styczen, P. Taras, M. Toulemonde and J.P. Vivien, Phys. Rev. C 12 (1975) 1865

*Lifetime and g-factor measurements in  $^{48}\text{Sc}$* , A. Chevallier, J. Chevallier, J.L. Gross, B. Haas, N. Schulz, J. Styczen, M. Toulemonde, Zeitschrift für Physik A 275 (1975) 51

#### 1974

*Level structure of  $^{47}\text{V}$  from the  $^{47}\text{Ti}(p,n\gamma)^{47}\text{V}$  reaction*, N. Schulz and M. Toulemonde, Nucl. Phys. A 230 (1974) 401

*Nuclear structure of  $^{47}\text{Sc}$  (populated in the  $^{44}\text{Ca}(\alpha,p\gamma)$  reaction): I. Gamma-ray correlations and lifetime measurements*, M. Toulemonde, L. Deschenes, A. Jamshidi and N. Schulz, Nucl. Phys. A 227 (1974) 309

*Nuclear structure of  $^{47}\text{Sc}$ : II. Linear polarisation measurement for the 1147 keV  $\gamma$ -transition*, M. Toulemonde, P. Engelstein, A. Jamshidi and N. Schulz, Nucl. Phys. A 227 (1974) 325

#### 1972

*Study of gamma transitions in the  $^{35}\text{S}$  nucleus (using the  $^{34}\text{S}(d,p\gamma)^{35}\text{S}$  reaction)*, R.M. Freeman, R. Faerber, M. Toulemonde and A. Gallmann, Nucl. Phys. A 197 (1972) 529

*Measurement of branching ratios and lifetimes of levels in  $^{30}\text{Si}$  from the  $^{27}\text{Al}(\alpha,p\gamma)^{30}\text{Si}$  reaction*, A. Gallman, F. Haas and M. Toulemonde, Can. J. Phys. 50 (1972) 278

*Gamma-ray angular distributions in the  $^{30}\text{Si}(\alpha,n\gamma)^{31}\text{S}$  reaction:  $^{31}\text{S}$  deduced levels*, M. Toulemonde and N. Schulz, Nucl. Phys. A 181 (1972) 273

#### 1971

*Measurement of angular correlations and mean lifetimes in  $^{57}\text{Co}$* , R. Dayras, M. Toulemonde, B. Cujec, B. Heusch, J.N. Mo and I.M. Szoghy, Nucl. Phys. A 173 (1971) 49

#### 1970

*Level structure of  $^{55}\text{Co}$ ,  $^{51}\text{V}$  and  $^{49}\text{V}$  from gamma-decay*, J. N. Mo, B. Cujec, R. Dayras, I.M. Szoghy and M. Toulemonde, Nucl. Phys. A 147 (1970) 129

*Measurement of the lifetimes of  $^{12}\text{B}$ ,  $^{14}\text{N}$  and  $^{16}\text{O}$* , A. Gallmann, F. Haas, N. Balaux, B. Heusch and M. Toulemonde, Can. J. of Phys. 48 (1970) 1595

#### 1969

*Mean lifetime measurements by Doppler effect*, A. Gallmann, F. Haas, B. Heusch, M. Toulemonde, Revue de Physique Appliquée, 4 (1969) 216

## Section 6: Monographies in book chapter

**2020**

*Fundamental Phenomena and Applications of Swift Heavy Ion Irradiations*, M. Lang, F. Djurabekova, N. Medvedev, M. Toulemonde, and C. Trautmann, *Comprehensive Nuclear Materials (Second Edition) Volume I*, (2020), Pages 485.

**2016**

*Model for track formation*, C. Dufour and M. Toulemonde in a book “Ion Beam Modification of Solids” Springer Series Surf. Sci. Top. Appl. Phys. 61 (2016) 63

**2015**

*Ion tracks in amorphous silica*, A. Benyagoub and M. Toulemonde *J. of Mat. Res.* 3(2015)1529

*Advances in understanding of swift heavy-ion tracks in complex ceramics*, Maik Lang, Ram Devanathan, Marcel Toulemonde, Christina Trautmann, *Curr. Op. Sol. St. Mat. Sci.* 29(2015)39

**2007**

*Electronic sputtering with swift heavy ions*, W. Assmann, M. Toulemonde, C. Trautmann,, *Top. in Appl. Phys.* 110 (2007) 401

**2006**

*Experimental Phenomena and Thermal Spike Model Description of Ion Tracks in Amorphisable Inorganic Insulators*, M. Toulemonde, W. Assmann, C. Dufour, A. Meftah, F. Studer and C. Trautmann, *Mat-Fys-Medd-52* (2006)

**1998**

*Nanometric amorphization of oxide materials under dense electronic excitation : Swift heavy ion irradiations*, M. Toulemonde and F. Studer, *Engin. Matls.* 155-156 (1998) 267

**1996**

*Les nouvelles sondes radioactives*, M. Toulemonde, Dossier Special pour “la Science ” pour le centenaire de la la découverte de la radioactivité

**1995**

*Swift heavy ions in insulating and conducting oxides: Tracks and physical properties*, , J. Provost, Ch. Simon, M. Hervieu, D. Groult, V. Hardy, F. Studer and M. Toulemonde, *MRS-Bulletin* 20,n° 12 (1995) 22

**1993**

*Latent track in electronic stopping power regime*, M. Toulemonde and F. Studer, *Sol. St. Phen.* 30/31 (1993) 377

*Some reflexions on accelerators and implanters for irradiation*, J. Chaumont, E. Cottureau, M. Toulemonde, *Sol. St. Phen.* 30/31 (1993) 149

**1992**

*Latent track in magnetic insulators: electronic stopping power threshold and damage morphology*, M. Toulemonde and F. Studer, , *Diffusion and Defect Data Solid State Data*, B23/24 (1992) 161

**1986**

*Electronic stopping power induced damage in  $Y_3Fe_5O_{12}$ : observation of the magnetic properties by Mössbauer spectrometry*, , M. Toulemonde, D. Groult, N. Nguyen and F. Studer, *Magnetic Thin Films* (1986) p.121, Krishnan, R. (ED)

**1988**

*Highly energetic heavy ion irradiation effects in ferrites*, D. Groult, M. Hervieu , N. Nguyen, F. Studer and M. Toulemonde, , *Diffusion and Defect Data - Solid State Data*, A 57/58 (1988) 391



**1984**

*Hydrogen in a-Si deposited by pyrolytic decomposition of SiH<sub>4</sub>*, M. Toulemonde, J.P. Stoquert and P. Siffert, Poly-Micro-Crystalline and Amorphous Semiconductors, p. 605-10, Author(s): Pinard, P. (ED), Kalbitzer, S. (ED)(1984)

**1983**

*Deposition conditions related to chemical and optical properties of hydrogenated amorphous silicon thin films*, J. Perrin, B. Drevillon and M. Toulemonde., 5th International Conference on Collective Phenomena (The New York Academy of Sciences, New York 1983) p.4725

**Sectio 7: Patents**

Brevet Européen Az. 99 121 479.1 et 99 121 606.1 (1999)

*Conductivité électrique à une dimension: effet quantique dans une trace latente.*

Déposants: CNRS, GSI (Allemagne)

Inventeurs: F. Ohnsorge, R. Neumann, C. Trautmann, E. Weidinger M. Toulemonde and F. Witke.

Brevet 93.06373 (1993):

*Procédé de fabrication de dispositif d'affichages à micropointes, utilisant la lithographie par ions lourds.*

Déposants: CEA, CNRS, MD Prospectives, J.C. Bassière

Inventeurs: J.C. Bassière, C. Bieth, H. Delagrangé, M. Toulemonde

Brevet 88.07089 (1988):

*Procédé d'amélioration des propriétés électroniques des composés supraconducteurs cristallins à oxyde de cuivre de type pérovskite.*

Déposants: CEA, CNRS

Inventeurs: S. Bouffard, D. Groult, F. Studer, M. Toulemonde

Brevet D63838 (1987):

*Réalisation par irradiation double face et une seule révélation chimique de membranes tamis ultra-sélectives.*

Déposants: CEA, CNRS

Inventeurs: E. Balanzat, M. Toulemonde