



LIST OF PUBLICATIONS

Frédéric Maillard
Researcher from the
French National Centre for Scientific Research
Laboratory of Electrochemistry and Physico-Chemistry of Materials and Interfaces

I. PATENTS

B1. A. Montaut, S. Moutin, M.J. Chatenet, J.F.C. Durst, **F.T. Maillard**, L. Dubau, "Hollow platinum nanoparticles for fuel cells", CNRS/Grenoble-INP/Air Liquide, US Patent. US20140227632 (European patent n° EP2680353A1).

B2. M. Zimmermann, M. Chatenet, **F. Maillard**, D. Ayme-Perrot, P. Sonntag, "Use of high specific surface area carbon materials as simultaneous counter electrode and reference electrode for electrochemical measurements (Carbone poreux monolithique à haute surface spécifique utilisable comme électrode de référence et contre-électrode au sein de cellules électrochimiques 3 électrodes", World Patent WO2016116382 (A1) — 2016-07-28

II. BOOK CHAPTERS

Ch1. **F. Maillard**, P. Simonov, E. R. Savinova, "Carbon materials as support for fuel cells electrocatalysts", In "Carbon Materials for Catalysis", Serp, P., Figueiredo, J. L., Eds.; John Wiley & Sons, Inc.: New York, (2009), 429-480. [DOI: 10.1002/9780470403709.ch12](https://doi.org/10.1002/9780470403709.ch12).

Ch2. **F. Maillard**, S. Pronkin, E. R. Savinova, "Size effects in electrocatalysis of fuel cells reactions on supported metal nanoparticles", In Fuel Cell Catalysis: a Surface Science Approach, Koper, M. T. M., Ed.; John Wiley & Sons, Inc.: New York, (2009) 507-566. [DOI: 10.1002/9780470463772.ch15](https://doi.org/10.1002/9780470463772.ch15).

Ch3. M. Chatenet, L. Guétaz, **F. Maillard**, "Electron microscopy to study MEA materials and structure degradation", In Handbook of Fuel Cells Vol. 5 "Advances in Electrocatalysis, Materials, Diagnostics and Durability", Vielstich W., Gasteiger H.A. Yokokawa H., John Wiley & Sons, Inc.: New York, (2009) 844-860. [DOI: 10.1002/9780470974001.f500056](https://doi.org/10.1002/9780470974001.f500056).

Ch4. **F. Maillard**, S. Pronkin, E. R. Savinova, "Influence of size on the electrocatalytic activities of supported metal nanoparticles in fuel cells related reactions", In Handbook of Fuel Cells Vol. 5 "Advances in Electrocatalysis, Materials, Diagnostics and Durability", Vielstich W., Gasteiger H.A., Yokokawa H. Eds, John Wiley & Sons, Inc.: New York, (2009) 91-111. [DOI: 10.1002/9780470974001.f500002a](https://doi.org/10.1002/9780470974001.f500002a).

Ch 5. **F. Maillard**, N. Job, M. Chatenet, "Basics of PEMFC including the use of carbon-supported nanoparticles", in New and Future Developments in Catalysis: Catalysis by Nanoparticles, S.L. Suib Ed., Elsevier, **chapter 17** (2013) 401-423. [DOI: 10.1016/B978-0-444-53874-1.00018-4](https://doi.org/10.1016/B978-0-444-53874-1.00018-4)

Ch6. **F. Maillard**, N. Job, M. Chatenet, "Approaches to synthesize carbon-supported Pt-based electrocatalysts for PEM fuel cells", in New and Future Developments in Catalysis: Batteries, Hydrogen storage and Fuel Cells, S.L. Suib Ed., Elsevier, **chapter 14** (2013) 407-428. [DOI: 10.1016/B978-0-44-453880-2.00019-3](https://doi.org/10.1016/B978-0-44-453880-2.00019-3)

Ch7. E. R. Savinova, A. Bonnefont, **F. Maillard**, "Anodic reactions in electrocatalysis: oxidation of carbon monoxide", in Encyclopedia of Applied Electrochemistry, G. Kreisa, K. Ota, F. Savinell Eds., Springer-Verlag GmbH, Heidelberg, (2014) 93-100. [DOI: 10.1007/978-1-4419-6996-5_393](https://doi.org/10.1007/978-1-4419-6996-5_393).

Ch8. T.W. Napporn, L. Dubau, C. Morais, M.R. Camilo, J. Durst, F.H.B. Lima, **F. Maillard**, B. Kokoh, "Tools and Electrochemical *in situ* and *on-line* Characterization Techniques for Nanomaterials", In: Kumar C. (eds), "*In situ* Characterization Techniques for Nanomaterials", Springer, Berlin, Heidelberg (2018) 383-439. [DOI: 10.1007/978-3-662-56322-9_11](https://doi.org/10.1007/978-3-662-56322-9_11).

Ch9. T. Asset, **F. Maillard**, F. Jaouen, "Electrocatalysis with single metal atom sites in doped carbon matrices", In: Serp P, Pham Minh D., "Supported Metal Single Atom Catalysis", John Wiley & Sons, Inc.: New York, (2022). [DOI: 10.1002/9783527830169.ch13](https://doi.org/10.1002/9783527830169.ch13). [hal-03585648](https://hal.archives-ouvertes.fr/hal-03585648)

III. PUBLICATIONS IN INTERNATIONAL PEER-REVIEWED JOURNALS

Papers where I am corresponding author

P1. O. Reynes, **F. Maillard**, J.-C Moutet, G. Royal, E. Saint-Aman, G. Stanciu, J.-P Dutasta, I. Gosse, J.C Mulatier, "Complexation and electrochemical sensing of anions by amide-substituted ferrocenyl ligands", *J. Organomet. Chem.*, **637-639** (2001) 356-363. [DOI: 10.1016/S0022-328X\(01\)00935-4](https://doi.org/10.1016/S0022-328X(01)00935-4)

P2. **F. Maillard**, M. Martin, F. Gloaguen, J.M. Léger, "Oxygen electroreduction on carbon-supported platinum catalysts. Particle-size effect on the tolerance to methanol competition", *Electrochim. Acta*, **47** (2002) 3431-3440. [DOI:10.1016/S0013-4686\(02\)00279-7](https://doi.org/10.1016/S0013-4686(02)00279-7)

P3. **F. Maillard**, F. Gloaguen, F. Hahn, J.-M. Léger, "Electrooxidation of carbon monoxide at ruthenium-modified platinum nanoparticles: effect of the surface mobility on the reaction kinetics", *Fuel Cells*, **3-4** (2002) 143-152. [DOI: 10.1002/fuce.200290013](https://doi.org/10.1002/fuce.200290013)

P4. **F. Maillard**, F. Gloaguen, J.-M. Léger, "Preparation of methanol oxidation electrocatalysts: ruthenium deposition on carbon-supported platinum nanoparticles", *J. Appl. Electrochem.*, **33** (2003) 1-8. [DOI: 10.1023/A:1022906615060](https://doi.org/10.1023/A:1022906615060)

P5. **F. Maillard**, M. Eikerling, O. Cherstiouk, S. Schreier, E. Savinova, U. Stimming, "Size effects on reactivity of Pt nanoparticles in CO monolayer oxidation: The role of surface mobility", *Faraday Discuss.* **125** (2004) 357-377. [DOI: 10.1039/b303911k](https://doi.org/10.1039/b303911k)

P6. **F. Maillard**, E. R. Savinova, P. A. Simonov, V. I. Zaikovskii, U. Stimming, "Infrared spectroscopic study of CO adsorption and electrooxidation on carbon-supported Pt nanoparticles: Inter-particle versus intra-particle heterogeneity", *J. Phys. Chem. B.*, **108** (2004) 17893-17904. [DOI: 10.1021/jp0479163](https://doi.org/10.1021/jp0479163)

P7. **F. Maillard**, S. Schreier, M. Hanzlik, E. R. Savinova, S. Weinkauff, U. Stimming, "Influence of particle agglomeration on the catalytic activity of carbon-supported Pt nanoparticles in CO monolayer oxidation", *Phys. Chem. Chem. Phys.*, **7** (2005) 385-393. [DOI: 10.1039/b411377b](https://doi.org/10.1039/b411377b)

P8. **F. Maillard**, G. -Q. Lu, A. Wieckowski, U. Stimming, "Ru-decorated Pt surfaces as model fuel cell electrocatalysts", *J. Phys. Chem. B.*, **109** (2005) 16230-16243. [DOI: 10.1021/jp052277x](https://doi.org/10.1021/jp052277x)

P9. B. Andreaus, **F. Maillard**, J. Kocylo, E. R. Savinova, M. Eikerling, "Kinetic modeling of CO monolayer oxidation on carbon-supported platinum nanoparticles", *J. Phys. Chem. B.*, **110** (2006) 21028-21040. [DOI: 10.1021/jp063856k](https://doi.org/10.1021/jp063856k)

- P10.** F. Maillard, E. R. Savinova, U. Stimming, "CO monolayer oxidation on Pt nanoparticles: further insights into the particle size effects", *Special issue of J. Electroanal. Chem., invited article*, **599** (2007) 221-232. [DOI:10.1016/j.jelechem.2006.02.024](https://doi.org/10.1016/j.jelechem.2006.02.024)
- P11.#** F. Maillard, E. Peyrelade, Y. Soldo-Olivier, M. Chatenet, E. Chaînet, R. Faure, "Is carbon-supported Pt-WO_x composite a CO-tolerant material?", *Electrochim. Acta*, **52** (2007) 1958-1967. [DOI: 10.1016/j.electacta.2006.08.024](https://doi.org/10.1016/j.electacta.2006.08.024)
- P12.** E. Guilminot, A. Corcella, M. Chatenet, F. Maillard, "Comparing the thin-film rotating disk electrode and the cavity microelectrode techniques to study carbon-supported platinum for PEMFC applications", *J. Electroanal. Chem.*, **599** (2007) 111-120. [DOI:10.1016/j.jelechem.2006.09.022](https://doi.org/10.1016/j.jelechem.2006.09.022)
- P13.#** E. Guilminot, A. Corcella, F. Charlot, F. Maillard, M. Chatenet, "Detection of Pt²⁺ ions and Pt nanoparticles inside the membrane of a PEM fuel cell", *J. Electrochem. Soc.*, **154** (2007) B96-B105. [DOI: 10.1149/1.2388863](https://doi.org/10.1149/1.2388863)
- P14.** E. Guilminot, A. Corcella, C. Iojoiu, F. Charlot, G. Berthomé, F. Maillard, M. Chatenet, J.-Y. Sanchez, E. Rossinot, E. Claude, "Membrane and active layer degradation upon Proton Exchange Membrane Fuel Cell steady-state operation – part I: platinum dissolution and redistribution within the Membrane Electrode Assembly", *J. Electrochem. Soc.*, **154** (2007) B1106-B1114. [DOI:10.1149/1.2775218](https://doi.org/10.1149/1.2775218)
- P15.** C. Iojoiu, E. Guilminot, F. Maillard, M. Chatenet, J.-Y. Sanchez, E. Claude, E. Rossinot, "Membrane and active layer degradation upon Proton Exchange Membrane Fuel Cell steady-state operation – part II: Influence of Pt²⁺ on the PE membrane properties", *J. Electrochem. Soc.* **154** (2007) B1115-B1120. [DOI:10.1149/1.2775282](https://doi.org/10.1149/1.2775282)
- P16.#** F. Maillard, A. Bonnefont, M. Chatenet, L. Guétaz, B. Doisneau-Cottignies, H. Roussel, U. Stimming, "Effect of the structure of Pt-Ru/C particles on CO_{ad} monolayer vibrational properties and electrooxidation kinetics", *Electrochim. Acta*, **53** (2007) 811-822. [DOI: 10.1016/j.electacta.2007.07.061](https://doi.org/10.1016/j.electacta.2007.07.061)
- P17.** F. Hahn, Y.-L. Mathis, A. Bonnefont, F. Maillard and C. A. Melendres, "In situ synchrotron far-infrared spectromicroscopy of a copper electrode at grazing incidence angle", *J. Synchrotron Radiat.* **14** (2007) 446-448. [DOI: 10.1107/S0909049507029809](https://doi.org/10.1107/S0909049507029809)
- P18.** M. Chatenet, E. Guilminot, C. Iojoiu, J.-Y. Sanchez, E. Rossinot, F. Maillard, "Pt redistribution within PEMFC MEAs and its consequence on their performances", *ECS Trans.*, **11** (2007) 1203-1214. [DOI: 10.1149/1.2781034](https://doi.org/10.1149/1.2781034)
- P19.** F. Hahn, Y.-L. Mathis, A. Bonnefont, F. Maillard and C.A. Melendres, "In situ synchrotron far infrared micro-spectroelectrochemistry with a grazing angle objective", *Infrared Physics & Technology*, **51** (2008) 446-449. [DOI: 10.1016/j.infrared.2007.12.017](https://doi.org/10.1016/j.infrared.2007.12.017)
- P20.#** F. Micoud, F. Maillard, A. Gourgaud, M. Chatenet, "Unique CO-tolerance of Pt-WO_x materials", *Electrochem. Comm.* **11** (2009) 651-654. [DOI: 10.1016/j.elecom.2009.01.007](https://doi.org/10.1016/j.elecom.2009.01.007)

- P21.** C. Lebouin, Y. Soldo-Olivier, E. Sibert, M. De Santis, **F. Maillard**, R. Faure, "Evidence of substrate effect in hydrogen electroinsertion into palladium atomic layers by means of *in situ* surface X-Ray diffraction", *Langmuir*, **25** (2009) 4251-4255. [DOI: 10.1021/la803913e](https://doi.org/10.1021/la803913e)
- P22.** N. Job, **F. Maillard**, J. Marie, S. Berthon-Fabry, J.-P. Pirard, M. Chatenet, "Electrochemical characterization of Pt/carbon xerogel and Pt/carbon aerogel catalysts – first insights into the influence of the carbon texture on the Pt nanoparticles morphology and catalytic activity", *J. Mater. Sci.*, **44** (2009) 6591-6600. [DOI: 10.1007/s10853-009-3581-x](https://doi.org/10.1007/s10853-009-3581-x)
- P23.** N. Job, S. Lambert, M. Chatenet, C.J. Gommès, **F. Maillard**, S. Berthon-Fabry, J.R. Regalbuto, J.-P. Pirard, "Preparation of highly loaded Pt/carbon xerogel catalysts for Proton Exchange Membrane fuel cells by the Strong Electrostatic Adsorption method", *Catal. Today*, **150** (2010) 119-127. [DOI:10.1016/j.cattod.2009.06.022](https://doi.org/10.1016/j.cattod.2009.06.022)
- P24.** M. Chatenet, L. Dubau, N. Job, **F. Maillard**, "The (electro)catalyst | membrane interface in the Proton Exchange Membrane Fuel Cell: similarities and differences with non-electrochemical Catalytic Membrane Reactors", *Catal. Today*, **156** (2010) 76-86. [DOI: 10.1016/j.cattod.2010.02.028](https://doi.org/10.1016/j.cattod.2010.02.028)
- P25.#** E. Billy, **F. Maillard**, A. Morin, L. Guétaz, F. Emieux, C. Thurier, P. Doppelt, S. Donet, S. Mailley, "Impact of ultra-low Pt loadings on the performance of anode/cathode in a Proton Exchange Membrane Fuel Cell", *J. Power Sources*, **195** (2010) 2737–2746. [DOI:10.1016/j.jpowsour.2009.10.101](https://doi.org/10.1016/j.jpowsour.2009.10.101)
- P26.#** F. Micoud, **F. Maillard**, A. Bonnefont, N. Job, M. Chatenet, "The role of the support in CO_{ads} monolayer electrooxidation on Pt nanoparticles: Pt/WO_x vs. Pt/C", *Phys. Chem. Chem. Phys.*, **12** (2010) 1182-1193. [DOI: 10.1039/B915244J](https://doi.org/10.1039/B915244J)
- P27.#** **F. Maillard**, L. Dubau, J. Durst, M. Chatenet, J. André, E. Rossinot, "On the durability of Pt₃Co/C particles in a proton-exchange membrane fuel cell: direct evidence of bulk Co segregation from the bulk to the surface", *Electrochem. Commun.*, **12** (2010) 1161-1164. [DOI: 10.1016/j.elecom.2010.06.007](https://doi.org/10.1016/j.elecom.2010.06.007)
- P28.** B. Molina Concha, M. Chatenet, **F. Maillard**, E. A. Ticianelli, F. H. B. Lima, R. B. de Lima, "In situ Infrared (FTIR) study of the mechanism of the borohydride oxidation reaction"; *Phys. Chem. Chem. Phys.*, **12** (2010) 11507-11516. [DOI: 10.1039/c003652h](https://doi.org/10.1039/c003652h)
- P29.** L. Dubau, **F. Maillard**, M. Chatenet, L. Guétaz, J. André, E. Rossinot, "Durability of Pt₃Co/C cathodes in a 16 cell PEMFC stack: macro / microstructural changes and degradation mechanisms", *J. Electrochem. Soc.*, **157** (2010) B1887-B1895. [DOI: 10.1149/1.3485104](https://doi.org/10.1149/1.3485104)
- P30.#** L. Dubau, **F. Maillard**, M. Chatenet, J. André, E. Rossinot, "Nanoscale compositional changes and modification of the surface reactivity of Pt₃Co/C nanoparticles during proton-exchange membrane fuel cell operation", *Electrochim. Acta*, **56** (2010) 776–783. [DOI: 10.1016/j.electacta.2010.09.038](https://doi.org/10.1016/j.electacta.2010.09.038)
- P31.#** L. Dubau, **F. Maillard**, M. Chatenet, J. André, E. Rossinot, "Durability of Pt₃Co/C Cathodes in a 16 Cell PEMFC Stack: Degradation Mechanisms and Modification of the ORR Electrocatalytic Activity", *ECS Trans.*, **33** (2010) 407-417. [DOI: 10.1149/1.3484539](https://doi.org/10.1149/1.3484539)

- P32.** L. Dubau, **F. Maillard**, J. Durst, M. Chatenet, J. André, E. Rossinot, "Influence of PEMFC operating conditions on the durability of Pt₃Co/C electrocatalysts", *ECS Trans.*, **33** (2010) 399-405. [DOI: 10.1149/1.3484538](https://doi.org/10.1149/1.3484538)
- P33.** J. Rooke, C. Matosa, R. Sescousse, T. Budtova, S. Berthon-Fabry, R. Mosdale, M. Chatenet, **F. Maillard**, "Elaboration and characterizations of platinum nanoparticles supported on cellulose-based carbon aerogel", *ECS Trans.*, **33** (2010) 447-459. [DOI: 10.1149/1.3484543](https://doi.org/10.1149/1.3484543)
- P34.#** L. Dubau, J. Durst, **F. Maillard**, L. Guétaz, M. Chatenet, J. André, E. Rossinot, "Further insights into the durability of Pt₃Co/C electrocatalysts: Formation of Pt hollow nanoparticles from Pt₃Co/C during proton-exchange membrane fuel cell operation", *Electrochim. Acta*, *invited article*, **56** (2011) 10658-10667. [DOI: 10.1016/j.electacta.2011.03.073](https://doi.org/10.1016/j.electacta.2011.03.073).
- P35.** J. Rooke, C. de Matos Passos, M. Chatenet, R. Sescousse, T. Budtova, S. Berthon-Fabry, R. Mosdale, **F. Maillard**, "Synthesis and properties of platinum nanocatalyst supported on cellulose-based carbon aerogel for applications in PEMFCs", *J. Electrochem. Soc.*, **158** (2011) B779-B789. [DOI: 10.1149/1.3585744](https://doi.org/10.1149/1.3585744)
- P36.** E. Mayousse, **F. Maillard**, F. Fouda-Onana, O. Sicardy, N. Guillet, "Synthesis and characterization of electrocatalysts used for oxygen evolution in PEM water electrolysis", *Int. J. Hydrogen Energy*, *invited article*, **36** (2011) 10474. [DOI:10.1016/j.ijhydene.2011.05.139](https://doi.org/10.1016/j.ijhydene.2011.05.139)
- P37.** L. Dubau, J. Durst, L. Guétaz, **F. Maillard**, M. Chatenet, J. André, E. Rossinot, "Heterogeneities of aging through-the-plane of a proton-exchange membrane fuel cell cathode", *ECS Trans*, **41** (2011) 827-836. [DOI: 10.1149/1.3635616](https://doi.org/10.1149/1.3635616)
- P38.** B. Vion-Dury, M. Chatenet, L. Guétaz, **F. Maillard**, "Determination of aging markers and their use as a tool to characterize Pt/C nanoparticles degradation mechanism in model PEMFC cathode environment", *ECS Trans*, **41** (2011) 697-708. [DOI: 10.1149/1.3635604](https://doi.org/10.1149/1.3635604)
- P39.#** **F. Maillard**, A. Bonnefont, F. Micoud, "An EC-FTIR study on the catalytic role of Pt in carbon corrosion", *Electrochem. Commun.*, **13** (2011) 1109. [DOI: 10.1016/j.elecom.2011.07.011](https://doi.org/10.1016/j.elecom.2011.07.011)
- P40.#** L. Dubau, J. Durst, **F. Maillard**, M. Chatenet, J. André, E. Rossinot, "Heterogeneities of aging within a PEMFC MEA", *Fuel Cells*, *invited article*, **12** (2012) 188-198. [DOI: 10.1002/fuce.201100073](https://doi.org/10.1002/fuce.201100073)
- P41.#** Z. Zhao, L. Dubau, **F. Maillard**, "Evidences of the migration of Pt crystallites on high surface area carbon supports in the presence of reducing molecules", *J. Power Sources*, **217** (2012) 449-458. [DOI: 10.1016/j.jpowsour.2012.06.016](https://doi.org/10.1016/j.jpowsour.2012.06.016)
- P42.** L. Dubau, J. Durst, L. Guétaz, **F. Maillard**, M. Chatenet, J. André, E. Rossinot, "Evidences of "through-plane" heterogeneities of ageing in a proton-exchange membrane fuel cell", *ECS Electrochem. Lett.*, **1** (2012) F13-F15. [DOI:10.1149/2.011202eel](https://doi.org/10.1149/2.011202eel)
- P43.#** J. Durst, M. Chatenet, **F. Maillard**, "Impact of metal cations on the electrocatalytic properties of Pt/C nanoparticles at multiple phase interfaces", *Phys. Chem. Chem. Phys.*, **14** (2012) 13000-13009. [DOI:10.1039/C2CP42191G](https://doi.org/10.1039/C2CP42191G)

- P44.** Z. Zhao, L. Castanheira, L. Dubau, G. Berthomé, A. Crisci, **F. Maillard**, “Carbon corrosion and platinum nanoparticles ripening under open circuit potential conditions”, *J. Power Sources*, **203** (2013) 236-243. DOI: [10.1016/j.jpowsour.2012.12.053](https://doi.org/10.1016/j.jpowsour.2012.12.053)
- P45.** J. Durst, A. Lamibrac, F. Charlot, J. Dillet, L.F. Castanheira, G. Maranzana, L. Dubau, **F. Maillard**, M. Chatenet, O. Lottin, “Degradation heterogeneities induced by repetitive start/stop events in proton exchange membrane fuel cell: Inlet vs. outlet and channel vs. land”, *Appl. Catal. B.*, **138-139** (2013) 416-426. DOI: [10.1016/j.apcatb.2013.03.021](https://doi.org/10.1016/j.apcatb.2013.03.021)
- P46.** N. Job, M. Chatenet, S. Berthon-Fabry, S. Hermans, **F. Maillard**, “Efficient Pt/carbon electrocatalysts for Proton Exchange Membrane fuel cells: avoid chloride-based Pt salts!”, *J. Power Sources*, **240** (2013) 294-305. DOI: [10.1016/j.jpowsour.2013.03.188](https://doi.org/10.1016/j.jpowsour.2013.03.188)
- P47.#** L. Dubau, L. Castanheira, G. Berthomé, **F. Maillard**, “An identical-location transmission electron microscopy study on the degradation of Pt/C nanoparticles under oxidizing, reducing and neutral atmosphere”, *Electrochim. Acta*, *invited article*, **110** (2013) 273-281. DOI: [10.1016/j.electacta.2013.03.184](https://doi.org/10.1016/j.electacta.2013.03.184)
- P48.#** M. El-Jawad, J.-L. Chemin, B. Gilles, **F. Maillard**, “A portable transfer chamber for electrochemical measurements on electrodes prepared in ultra-high vacuum”, *Rev. Sci. Inst.*, **84** (2013) 064101. DOI: [10.1063/1.4809936](https://doi.org/10.1063/1.4809936)
- P49.** Y. Soldo-Olivier, E. Sibert, B. Previdello, M. C. Lafouresse, **F. Maillard**, M. De Santis, “H-electro-insertion into Pd/Pt(111) nanofilms: an original method for isotherm measurement coupled to *in situ* surface X-ray diffraction structural study”, *Electrochim. Acta.*, **112** (2013) 905-9012. DOI: [10.1016/j.electacta.2013.06.095](https://doi.org/10.1016/j.electacta.2013.06.095)
- P50.#** L. Dubau, M. Lopez-Haro, L. Castanheira, J. Durst, M. Chatenet, L. Guétaz, P. Bayle-Guillemaud, N. Caqué, E. Rossinot, **F. Maillard**, “Probing the structure, the composition and the ORR activity of Pt₃Co/C nanocrystallites during a 3422 h PEMFC ageing test”, *Appl. Catal. B.*, **142-143** (2013) 801-808. DOI: [10.1016/j.apcatb.2013.06.011](https://doi.org/10.1016/j.apcatb.2013.06.011)
- P51.#** M. Lopez-Haro, L. Dubau, L. Castanheira, J. Durst, M. Chatenet, P. Bayle-Guillemaud, L. Guétaz, **F. Maillard**, “Pt₃Co nanoparticles and carbon to the test of PEMFC operation”, *ECS Trans.*, **58** (2013) 937-943. DOI: [10.1149/05801.0937ecst](https://doi.org/10.1149/05801.0937ecst)
- P52.#** L. Castanheira, L. Dubau, **F. Maillard**, “Accelerated stress tests of Pt/HSAC electrocatalysts: an identical-location transmission electron microscopy study on the influence of intermediate characterizations”, *Electrocatalysis*, **5** (2014) 125-135. DOI: [10.1007/s12678-013-0173-y](https://doi.org/10.1007/s12678-013-0173-y)
- P53.#** L. Dubau, L. Castanheira, **F. Maillard**, M. Chatenet, O. Lottin, G. Maranzana, J. Dillet, A. Lamibrac, J.-C. Perrin, E. Moukheiber, A. Elkaddouri, G. De Moor, C. Bas, L. Flandin, N. Caqué, “A review of PEM fuel cell durability: materials degradation, local heterogeneities of aging and possible mitigation strategies”, *Wiley Interdisciplinary Reviews: Energy and Environment*, *invited article*, **3** (2014) 540-560. DOI: [10.1002/wene.113](https://doi.org/10.1002/wene.113)

P54. C. Cao, G. Yang, L. Dubau, **F. Maillard**, S. D. Lambert, J.-P. Pirard, N. Job, “Highly dispersed Pt/C catalysts prepared by the charge enhanced dry impregnation method”, *Appl. Catal. B.* **150-151** (2014) 101-106. [DOI: 10.1016/j.apcatb.2013.12.004](https://doi.org/10.1016/j.apcatb.2013.12.004)

P55.# J. Durst, M. Lopez-Haro, L. Guétaz, P. Bayle-Guillemaud, L. Dubau, M. Chatenet, Y. Soldo-Olivier, **F. Maillard**, “Reversibility of Pt-skin and Pt-skeleton nanostructures in acidic media”, *J. Phys. Chem. Lett.* **5** (2014) 434-439. [DOI: 10.1021/jz4025707](https://doi.org/10.1021/jz4025707)

P56.# M. Lopez-Haro, L. Dubau, L. Guétaz, P. Bayle-Guillemaud, M. Chatenet, J. André, N. Caqué, E. Rossinot, **F. Maillard**, “Atomic-scale structure and composition of Pt₃Co/C nanocrystallites during real PEMFC operation: A STEM–EELS study”, *Appl. Catal. B.* **152-153** (2014) 300-308. [DOI: 10.1016/j.apcatb.2014.01.034](https://doi.org/10.1016/j.apcatb.2014.01.034)

P57. A. Zubiaur, M. Chatenet, **F. Maillard**, S. Lambert, J.-P. Pirard, N. Job, “Using the multiple SEA method to synthesize Pt/carbon xerogel electrocatalysts for PEMFC applications”, *Fuel Cells*, invited article, **14** (2014) 343-349. [DOI: 10.1002/fuce.201300208](https://doi.org/10.1002/fuce.201300208)

P58. F.R. Nikkuni, B. Vion-Dury, L. Dubau, **F. Maillard**, E.A. Ticianelli, M. Chatenet, “The role of water in the degradation of Pt₃Co/C nanoparticles: An identical location transmission electron microscopy study in polymer electrolyte environment”, *Appl. Catal. B.*, **156-157C** (2014) 301-306. [DOI: 10.1016/j.apcatb.2014.03.029](https://doi.org/10.1016/j.apcatb.2014.03.029)

P59.# L. Castanheira, L. Dubau, M. Mermoux, G. Berthomé, N. Caqué, E. Rossinot, M. Chatenet, **F. Maillard**, “Carbon corrosion in proton-exchange membrane fuel cells: From model experiments to real-life operation in membrane electrode assemblies”, *ACS Catal.*, **4** (2014) 2258-2267. [DOI: 10.1021/cs500449g](https://doi.org/10.1021/cs500449g)

P60. L. Dubau, L. Castanheira, M. Chatenet, **F. Maillard**, J. Dillet, O. Lottin, G. De Moor, C. Bas, L. Flandin, E. Rossinot, N. Caqué, “Carbon corrosion induced by membrane failure: the weak link of PEMFC long term performance”, *Int. J. Hydrogen Energy*, invited article **39** (2014) 21902–21914. [DOI: 10.1016/j.ijhydene.2014.07.099](https://doi.org/10.1016/j.ijhydene.2014.07.099).

P61.# L. Dubau, M. Lopez-Haro, J. Durst, L. Guétaz, P. Bayle-Guillemaud, M. Chatenet, **F. Maillard**, “Beyond conventional electrocatalysts: Hollow nanoparticles for improved and sustainable oxygen reduction reaction activity”, *J. Mater. Chem. A.* **2** (2014) 18497-18507. [DOI: 10.1039/C4TA03975K](https://doi.org/10.1039/C4TA03975K).

P62.# L. Castanheira, W.O. Silva, F.H. Lima, A. Crisci, L. Dubau, **F. Maillard**, “Carbon Corrosion in Proton-Exchange Membrane Fuel Cells: Effect of the Carbon Structure, the Degradation Protocol and the Gas Atmosphere”, *ACS Catal.* **5** (2015) 2184-2194. [DOI: 10.1021/cs501973j](https://doi.org/10.1021/cs501973j)

P63.# M. El-Jawad, B. Gilles, **F. Maillard**, “Structure and surface reactivity of ultra-thin Pt/W(111) films”, *Electrocatalysis*, **6** (2015) 398-404. [DOI: 10.1007/s12678-015-0260-3](https://doi.org/10.1007/s12678-015-0260-3)

P64.# L. Dubau, T. Asset, C. Bonnaud, R. Chattot, V. van Peene, J. Nelayah, **F. Maillard**, “Tuning the performance and the stability of hollow nanostructures for the oxygen reduction reaction”, *ACS Catal.*, **5** (2015) 5333-5341. [DOI: 10.1007/s12678-015-0260-3](https://doi.org/10.1007/s12678-015-0260-3)

- P65.** A. Serov, N.I. Andersen, S. Kabir, A. Roy, T. Asset, M. Chatenet, **F. Maillard**, P. Atanassov, "Pd supported on 3D graphene as an active catalyst for alcohols electrooxidation", *J. Electrochem. Soc.*, **162** (2015) F1305-F1309. [DOI : 10.1149/2.0301512jes](https://doi.org/10.1149/2.0301512jes)
- P66.** L. Dubau, J. Durst, L. Castanheira, **F. Maillard**, A. Lamibrac, J. Dillet, G. Maranzana, O. Lottin, A. El Kaddouri, G. de Moor, C. Bas, L. Flandin, E. Rossinot, N. Caqué, M. Chatenet, "Various scales of aging heterogeneities upon PEMFC operation – A link between local MEA materials degradation and the cell performance", *ECS Trans.*, **69** (2015) 133-146. [DOI : 10.1149/06917.0133ecst](https://doi.org/10.1149/06917.0133ecst)
- P67.** G. Ozouf, G. Cognard, **F. Maillard**, L. Guétaz, M. Heitzmann, C. Beauger "SnO₂ Aerogels: Towards Performant and Stable PEFC Catalyst Supports", *ECS Trans.*, **69** (2015) 1207-1220. [DOI : 10.1149/06917.1207ecst](https://doi.org/10.1149/06917.1207ecst)
- P68.#** L. Dubau, M. Lopez-Haro, J. Durst, **F. Maillard**, "Atomic-scale restructuring of hollow PtNi/C electrocatalysts during accelerated stress tests", *Catal. Today*, invited article, **262** (2016) 146-154. [DOI: 10.1016/j.cattod.2015.08.011](https://doi.org/10.1016/j.cattod.2015.08.011).
- P69.** A. Bach Delpéuch, **F. Maillard**, M. Chatenet, C. Cremers, "Ethanol oxidation reaction (EOR) investigation on Pt/C, Rh/C, and Pt-based bi- and tri-metallic electrocatalysts: a DEMS and FTIR study", *Appl. Catal. B.*, **181** (2016) 672-680. [DOI: 10.1016/j.apcatb.2015.08.041](https://doi.org/10.1016/j.apcatb.2015.08.041)
- P70.#** L. Dubau, **F. Maillard**, "Unveiling the crucial role of temperature on the stability of oxygen reduction reaction electrocatalysts", *Electrochem. Commun.*, **63** (2016) 65-69. [DOI: 10.1016/j.elecom.2015.12.011](https://doi.org/10.1016/j.elecom.2015.12.011)
- P71.** A. Serov, T. Asset, M. Padilla, A. J. Roy, I. Matanovica, U. Martinez, M. Chatenet, **F. Maillard**, D. Bayer, C. Cremers, P. Atanassov, "Highly -Active Pd-Cu Catalysts for Oxidation of Ubiquitous Oxygenated Fuels", *Appl. Cat. B.*, **191** (2016) 76-85. [DOI: 10.1016/j.apcatb.2016.03.016](https://doi.org/10.1016/j.apcatb.2016.03.016)
- P72.#** L. Dubau, S. Moldovan, O. Ersen, J. Nelayah, P. Bordet, J. Drnec, T. Asset, R. Chattot, **F. Maillard**, "Defects do Catalysis: CO Monolayer Oxidation and Oxygen Reduction Reaction on Hollow PtNi/C Nanoparticles", *ACS Catal.* **6** (2016) 4673–4684. [DOI: 10.1021/acscatal.6b01106](https://doi.org/10.1021/acscatal.6b01106)
- P73.#** T. Asset, R. Chattot, J. Nelayah, N. Job, L. Dubau, **F. Maillard**, "Structure – Activity Relationships for the Oxygen Reduction Reaction in Porous Hollow PtNi/C Nanoparticles", *ChemElectroChem*, invited article, **3** (2016) 1591-1600. [DOI: 10.1002/celec.201600300](https://doi.org/10.1002/celec.201600300)
- P74.** T. Asset, A. Roy, T. Sakamoto, M. Padilla, I. Matanovic, K. Artyushkova, A. Serov, **F. Maillard**, M. Chatenet, K. Asazawa, H. Tanaka, P. Atanassov, "Highly active and selective nickel molybdenum catalysts for direct hydrazine fuel cell", *Electrochim. Acta*, **215** (2016) 420-426. [DOI: 10.1016/j.electacta.2016.08.106](https://doi.org/10.1016/j.electacta.2016.08.106)
- P75.#** G. Cognard, G. Ozouf, C. Beauger, G. Berthomé, D. Risetto, L. Dubau, R. Chattot, M. Chatenet, **F. Maillard**, "Benefits and limitations of Pt nanoparticles supported on highly porous antimony-doped tin dioxide aerogel as alternative cathode material for proton-exchange membrane fuel cells", *Appl. Cat. B.*, **201** (2017) 381-390. [DOI: 10.1016/j.apcatb.2016.08.010](https://doi.org/10.1016/j.apcatb.2016.08.010)
- P76.#** G. Cognard, G. Ozouf, C. Beauger, I. Jiménez-Morales, S. Cavaliere, D. Jones, J. Rozière, M. Chatenet, **F. Maillard**, "Pt nanoparticles supported on niobium-doped tin dioxide: impact

of the support morphology on Pt utilization and electrocatalytic activity”, *Electrocatalysis*, **8**(1) (2017) 51-58. [DOI: 10.1007/s12678-016-0340-z](https://doi.org/10.1007/s12678-016-0340-z).

[Cover Feature for Volume 8/17 of Electrocatalysis \(Springer\)](#).

P77.# R. Chattot, T. Asset, P. Bordet, J. Drnec, L. Dubau, **F. Maillard**, “Beyond strain and ligand effects: Microstrain-induced enhancement of the oxygen reduction reaction kinetics on various PtNi/C nanostructures”, *ACS Catal.*, **7** (1) (2017) 398-408. [DOI: 10.1021/acscatal.6b01106](https://doi.org/10.1021/acscatal.6b01106)

P78.# O. Le Bacq, A. Pasturel, R. Chattot, B. Previdello, J. Nelayah, T. Asset, L. Dubau, **F. Maillard**, “Effect of Atomic Vacancies on the Structure and the Electrocatalytic Activity of Pt-rich/C Nanoparticles: A Combined Experimental and Density Functional Theory Study”, *ChemCatChem*, *invited article* **9** (2017) 2324-2338. [DOI: 10.1002/cctc.201601672](https://doi.org/10.1002/cctc.201601672).

P79.# L. Dubau, J. Nelayah, T. Asset, R. Chattot, **F. Maillard**, “Implementing Structural Disorder as a Promising Direction for Improving the Durability of PtNi/C Nanoparticles”, *ACS Catal.* **7** (4) (2017) 3072-3081. [DOI: 10.1021/acscatal.7b00410](https://doi.org/10.1021/acscatal.7b00410)

P80.# R. Chattot, T. Asset, J. Drnec, P. Bordet, J. Nelayah, L. Dubau, **F. Maillard**, “Atomic-Scale Snapshots of the Formation and Growth of Hollow PtNi/C Nanocatalysts”, *Nano Lett.*, **17** (4) (2017) 2447-2453. [DOI: 10.1021/acs.nanolett.7b00119](https://doi.org/10.1021/acs.nanolett.7b00119)

P81. M. Lions, J.-B. Tommasino, R. Chattot, B. Abeykoon, N. Guillou, T. Devic, A. Cardenas, **F. Maillard**, A. Fateeva, “Insights into the mechanism of electrocatalysis of oxygen reduction reaction by a porphyrinic metal organic framework “, *Chem. Commun.*, 583 (2017) 6496-6499. [DOI: doi.org/10.1039/c7cc02113e](https://doi.org/10.1039/c7cc02113e)

P82.# M. El-Jawad, B. Gilles, **F. Maillard**, “Stability of Nanopyramids of Pt/W(111) in Sulfuric Acid Medium”, *Key Engineering Materials*, **735** KEM, 219-224. [DOI: 10.4028/www.scientific.net/KEM.735.219](https://doi.org/10.4028/www.scientific.net/KEM.735.219).

P83.# G. Cognard, G. Ozouf, C. Beauger, L. Dubau, M. López-Haro, M. Chatenet, **F. Maillard**, “Insights into the stability of Pt nanoparticles supported on antimony-doped and niobium-doped tin dioxide in different potential ranges”, *Electrochim. Acta*, **245** (2017) 993–1004. [DOI: 10.1016/j.electacta.2017.05.178](https://doi.org/10.1016/j.electacta.2017.05.178)

P84. T. Asset, R. Chattot, J. Drnec, P. Bordet, N. Job, **F. Maillard**, L. Dubau, “Elucidating the mechanisms driving the ageing of porous hollow PtNi/C nanoparticles by the means of CO_{ads} stripping”, *ACS Appl. Mater. Interf.*, **9** (30) (2017) 25298–25307. [DOI: 10.1021/acscami.7b05782](https://doi.org/10.1021/acscami.7b05782)

P85.# T. Asset, R. Chattot, O. Le Bacq, A. Pasturel, J. Drnec, P. Bordet, J. Nelayah, L. Dubau, **F. Maillard**, “Porous Hollow PtNi/C Nanoparticles and Their Many Facets”, *ECS Trans.*, **80** (8) (2017) 731-741. [DOI: 10.1021/10.1149/08008.0731ecst](https://doi.org/10.1021/10.1149/08008.0731ecst)

P86.# T. Asset, N. Job, Y. Busby, A. Crisci, V. Martin, V. Stergiopoulos, C. Bonnaud, A. Serov, M. Fontana, B. Mercier-Guyon, V. Martin, R. Chattot, N. Job, L. Dubau, **F. Maillard**, “Porous Hollow PtNi/C Electrocatalysts: Carbon Support Considerations to Meet Performance and Stability Requirements”, *ACS Catal.*, **8** (2018) 893-903. [DOI: 10.1021/acscatal.7b03539](https://doi.org/10.1021/acscatal.7b03539)

- P87.** T. Asset, A. Serov, T. M. Padilla, A. J. Roy, I. Matanovic, M. Chatenet, **F. Maillard**, P. Atanassov, "Design of Pd-Pb catalysts for glycerol and ethylene glycol electrooxidation in alkaline medium", *Electrocatalysis*, **9** (4) (2018) 480-485. DOI: [10.1007/s12678-017-0449-8](https://doi.org/10.1007/s12678-017-0449-8)
- P88.** G. Ozouf, G. Cognard, **F. Maillard**, M. Chatenet, L. Guétaz, M. Heitzmann, P.-A. Jacques, C. Beauger, "Sb-Doped SnO₂ Aerogels Based Catalysts for Proton Exchange Membrane Fuel Cells: Pt Deposition Routes, Electrocatalytic Activity and Durability", *J. Electrochem. Soc.*, **165** (6) (2018) F3036-F3044. DOI: [10.1149/2.0041806jes](https://doi.org/10.1149/2.0041806jes). [hal-01719279](https://hal.archives-ouvertes.fr/hal-01719279)
- P89.** C. Lafforgue, A. Zadick, L. Dubau, **F. Maillard**, M. Chatenet, "Selected review of the degradation of Pt and Pd-based carbon-supported electrocatalysts for alkaline fuel cells: towards mechanisms of degradation", *Fuel Cells*, **18** (3) (2018) 229-238, invited article. DOI: [10.1002/face.201700094](https://doi.org/10.1002/face.201700094). [hal-01887245](https://hal.archives-ouvertes.fr/hal-01887245)
- P90.#** T. Asset, M. Fontana, B. Mercier-Guyon, R. Chattot, N. Job, L. Dubau, **F. Maillard**, "A Review on Recent Developments and Prospects for Oxygen Reduction Reaction on Hollow Pt-alloy Nanoparticles", *ChemPhysChem.*, **19** (2018) 1552-1567. DOI: [10.1002/cphc.201800153](https://doi.org/10.1002/cphc.201800153). [hal-02334300](https://hal.archives-ouvertes.fr/hal-02334300) Cover Feature for Volume 13/2018
- P91.** T. Asset, R. Chattot, **F. Maillard**, L. Dubau, Y. Ahmad, N. Batisse, M. Dubois, K. Guérin, F. Labbé, R. Metkemeijer, S. Berthon-Fabry, M. Chatenet, "Activity and durability of platinum-based electrocatalysts supported on bare or fluorinated nanostructured carbon substrates", *J. Electrochem. Soc.*, **165** (6) (2018) F3346-F3358. Invited article. DOI: [10.1149/2.031806jes](https://doi.org/10.1149/2.031806jes). [hal-01785111](https://hal.archives-ouvertes.fr/hal-01785111)
- P92.** F. Labbé, E. Disa, Y. Ahmad, K. Guérin, T. Asset, **F. Maillard**, M. Chatenet, R. Metkemeijer, S. Berthon-Fabry, "Tin dioxide coated carbon materials as an alternative catalyst support for PEMFCs: impacts of the intrinsic carbon properties and the synthesis parameters on the coating characteristics", *Microporous and Mesoporous Mater.* **271** (2018) 1-15. DOI: [10.1016/j.micromeso.2018.05.019](https://doi.org/10.1016/j.micromeso.2018.05.019). [hal-01810287](https://hal.archives-ouvertes.fr/hal-01810287)
- P93.#** R. Chattot, O. Le Bacq, V. Beermann, S. Kühn, J. Herranz, S. Henning, L. Kühn, T. Asset, L. Guétaz, G. Renou, J. Drnec, P. Bordet, A. Pasturel, A. Eychmüller, T. J. Schmidt, P. Strasser, L. Dubau, **F. Maillard**, "Surface Distortion as a Unifying Concept and Descriptor in Oxygen Reduction Reaction Electrocatalysis", *Nat. Mater.* **17** (2018) 827-833. DOI: [10.1038/s41563-018-0133-2](https://doi.org/10.1038/s41563-018-0133-2). Cover Feature for Volume 17/2018. [hal-01856128](https://hal.archives-ouvertes.fr/hal-01856128)
- P94.** J. L. Bott-Neto, T. Asset, **F. Maillard**, L. Dubau, Y. Ahmad, K. Guérin, S. Berthon-Fabry, A. Mosdale, R. Mosdale, E. A. Ticianelli, Marian Chatenet, "Utilization of graphitized and fluorinated carbon as platinum nanoparticles supports for application in proton exchange membrane fuel cell cathodes", *J. Power Sources* **404** (2018) 28-38. DOI: [10.1016/j.jpowsour.2018.10.004](https://doi.org/10.1016/j.jpowsour.2018.10.004). [hal-01895938](https://hal.archives-ouvertes.fr/hal-01895938)
- P95.#** K. Kumar, P. Gairola, M. Lions, N. Ranjbar-Sahraie, M. Mermoux, L. Dubau, A. Zitolo, F. Jaouen, **F. Maillard**, "Physical and Chemical Considerations for Improving Catalytic Activity and Stability of Non-Precious Metal Oxygen Reduction Reaction Catalysts", *ACS Catal.* **8** (2018) 11264-11276. DOI: [10.1021/acscatal.8b02934](https://doi.org/10.1021/acscatal.8b02934). [hal-01947565](https://hal.archives-ouvertes.fr/hal-01947565)
- P96.** T. Asset, C. J. Gommès, J. Drnec, P. Bordet, R. Chattot, I. Martens, J. Nelayah, N. Job, **F. Maillard**, L. Dubau, "Disentangling the Degradation Pathways of Highly Defective PtNi/C

Nanostructures – An *Operando* Wide and Small Angle X-Ray Scattering Study”, *ACS Catal.* **9** (2019) 160-167. [DOI: 10.1021/acscatal.8b02665](https://doi.org/10.1021/acscatal.8b02665). [hal-01906397](https://hal.archives-ouvertes.fr/hal-01906397) [Cover Feature for Volume 9/2019](#).

P97. J. Fichtner, B. Garlyyev, S. Watzele, H. A. El-Sayed, J. N. Schwämmlein, W. J. Li, **F. Maillard**, L. Dubau, J. Macák, A. Holleitner, A. S. Bandarenka, “Top-Down Synthesis of Nanostructured Platinum-Lanthanide Alloy Oxygen Reduction Reaction Catalysts: Pt_xPr/C as an Example”, *ACS Appl. Mater. Interf.* **11** (2019) 5129-5135. [DOI: 10.1021/acscami.8b20174](https://doi.org/10.1021/acscami.8b20174). [hal-02334298](https://hal.archives-ouvertes.fr/hal-02334298)

P98.# F. Claudel, L. Dubau, G. Berthomé, L. Sola-Hernandez, C. Beauger, L. Piccolo, **F. Maillard**, “Degradation Mechanisms of Oxygen Evolution Reaction Electrocatalysts: A Combined Identical-Location Transmission Electron Microscopy and X-Ray Photoelectron Spectroscopy Study”, *ACS Catal.* **9** (2019) 4688-4698. [DOI: 10.1021/acscatal.9b00280](https://doi.org/10.1021/acscatal.9b00280). [hal-02138787](https://hal.archives-ouvertes.fr/hal-02138787)

P99.# C. Lafforgue, **F. Maillard**, V. Martin, L. Dubau, M. Chatenet, “Degradation of Carbon-supported Platinum Group Metal Electrocatalysts in Alkaline Media Studied by *in situ* Fourier-Transform Infrared Spectroscopy and Identical-Location Transmission Electron Microscopy”, *ACS Catal.*, **9** (2019) 5613-5622. [DOI: 10.1021/acscatal.9b00439](https://doi.org/10.1021/acscatal.9b00439). [hal-02334297](https://hal.archives-ouvertes.fr/hal-02334297)

P100.# **F. Maillard**, W. Silva, L. Castanheira, L. Dubau, F. Lima, “Carbon Corrosion in Proton-Exchange Membrane Fuel Cells: Spectrometric Evidence of Pt-Catalysed Decarboxylation at Anode-Relevant Potential”, invited article dedicated to Professor José H. Zagal in celebration of his 70th birthday, *ChemPhysChem.* **20** (2019) 3106– 3111. [DOI: 10.1002/cphc.201900505](https://doi.org/10.1002/cphc.201900505). [hal-02334295](https://hal.archives-ouvertes.fr/hal-02334295)

P101. M. Scohy, C. Montella, F. Claudel, S. Abbou, L. Dubau, **F. Maillard**, E. Sibert, S. Sunde, “Investigating The Oxygen Evolution Reaction on Ir(111) Electrode in Acidic Medium Using Conventional and Dynamic Electrochemical Impedance Spectroscopy”, *Electrochim. Acta.* **320** (2019) 134536. [DOI: 10.1016/j.electacta.2019.07.047](https://doi.org/10.1016/j.electacta.2019.07.047). [hal-02196014](https://hal.archives-ouvertes.fr/hal-02196014)

P102. L. Solà-Hernández, F. Claudel, **F. Maillard**, C. Beauger, “Doped Tin Oxide aerogels as Oxygen Evolution Reaction catalyst supports”, *Int. J. Hydrogen Energy.* **44** (2019) 24331-24341. [DOI: 10.1016/j.ijhydene.2019.07.152](https://doi.org/10.1016/j.ijhydene.2019.07.152). [hal-02334292](https://hal.archives-ouvertes.fr/hal-02334292)

P103. S. Watzele, P. Hauenstein, Y. Liang, J. Fichtner, S. Xue, B. Garlyyev, D. Scieszka, F. Claudel, **F. Maillard**, A. S. Bandarenka, “Determination of Electroactive Surface Area of Ni-, Co-, Fe-, and Ir-based Oxide Electrocatalysts”, *ACS Catal.* **9** (2019) 9222-9230. [DOI: 10.1021/acscatal.9b02006](https://doi.org/10.1021/acscatal.9b02006). [hal-02334291](https://hal.archives-ouvertes.fr/hal-02334291)

P104.# M. Scohy, S. Abbou, V. Martin, B. Gilles, E. Sibert, L. Dubau, **F. Maillard**, “Probing Surface Oxide Formation and Dissolution of Ir Single Crystals via X-ray Photoelectron Spectroscopy and Inductively-Coupled Plasma Mass Spectrometry”, *ACS Catal.* **9** (2019) 9859-9869. [DOI: 10.1021/acscatal.9b02988](https://doi.org/10.1021/acscatal.9b02988). [hal-02311309](https://hal.archives-ouvertes.fr/hal-02311309)

P105. # K. Kumar, L. Dubau, M. Mermoux, J. Li. A. Zitolo, J. Nelayah, F. Jaouen, **F. Maillard**, “On the Influence of Oxygen on the Degradation of Fe-N-C Catalysts”, *Angew. Chemie. Int. Ed.* **59** (2020) 3235-3243. [DOI: 10.1002/anie.201912451](https://doi.org/10.1002/anie.201912451). [hal-02464078](https://hal.archives-ouvertes.fr/hal-02464078)

P106. R. Chattot, I. Martens, M. Scohy, J. Herranz, J. Drnec, **F. Maillard**, L. Dubau, “Disclosing Pt-Bimetallic Alloy Nanoparticle Surface Lattice Distortion with Electrochemical Probes”, *ACS*

Energy Lett. **5** (2020) 162-169. (Impact Factor = 23.991). DOI: [10.1021/acseenergylett.9b02287](https://doi.org/10.1021/acseenergylett.9b02287).
([hal-02931373](https://hal.archives-ouvertes.fr/hal-02931373))
[Cover Feature for Volume 5/2020.](#)

P107. L. Dubau, **F. Maillard**, M. Chatenet, G. Ozouf, C. Beauger, A. Mosdale, R. Mosdale, “Durability of Alternative Metal Oxide Supports for Application at a Proton-Exchange Membrane Fuel Cell Cathode – Comparison of Antimony and Niobium Doped Tin Oxide”, invited article, *Energies*. **13** (2020) 403. DOI: [10.3390/en13020403](https://doi.org/10.3390/en13020403). ([hal-02443457](https://hal.archives-ouvertes.fr/hal-02443457))

P108. J. Fichtner, S. Watzele, B. Garlyyev, R. M. Kluge, F. Haimerl, H. A. El-Sayed, W.-J. Li, **F. Maillard**, L. Dubau, R. Chattot, J. Michalička, J. M. Macak, W. Wang, D. Wang, T. Gigl, C. Hugenschmidt, A. S. Bandarenka, “Tailoring the Oxygen Reduction Activity of Pt Nanoparticles through Surface Defects: A Simple Top-Down Approach”, *ACS Catal.* **10** (2020) 3131-3142. DOI: [10.1021/acscatal.9b04974](https://doi.org/10.1021/acscatal.9b04974). ([hal-02931374](https://hal.archives-ouvertes.fr/hal-02931374))

P109.# R. Sgarbi de Moraes, E. Ticianelli, **F. Maillard**, F. Jaouen, M. Chatenet, “Oxygen Reduction Reaction on Metal and Nitrogen–Doped Carbon Electrocatalysts in the Presence of Sodium Borohydride”, *Electrocatalysis* **11**(4) (2020) 365-373. DOI: [10.1007/s12678-020-00602-1](https://doi.org/10.1007/s12678-020-00602-1). ([hal-02931375](https://hal.archives-ouvertes.fr/hal-02931375))
[Cover Feature for Volume 11, Issue \(4\).](#)

P110.# S. Abbou, R. Chattot, V. Martin, F. Claudel, L. Solà-Hernández, C. Beauger, L. Dubau, **F. Maillard**, “Manipulating the Corrosion Resistance of Doped SnO₂ Aerogels Trough Doping for Efficient and Durable Oxygen Evolution Reaction Electrocatalysis in Acidic Media”, *ACS Catal.* **10** (2020) 7283-7284. DOI: [10.1021/acscatal.0c01084](https://doi.org/10.1021/acscatal.0c01084). ([hal-02931377v2](https://hal.archives-ouvertes.fr/hal-02931377v2))
[Cover Feature for Volume 10, Issue \(13\).](#)

P111.# R. Chattot, P. Bordet, I. Martens, J. Drnec, L. Dubau, **F. Maillard**, “Building Practical Descriptors for Defect Engineering of Electrocatalytic Materials”, invited Viewpoint Article, *ACS Catal.* **10** (2020) 9046-9056. DOI: [10.1021/acscatal.0c02144](https://doi.org/10.1021/acscatal.0c02144). ([hal-02931378](https://hal.archives-ouvertes.fr/hal-02931378))

P112. J. Li, M. Tahar Sougrati, A. Zitolo, J. M. Ablett, I. C. Oğuz, T. Mineva, I. Matanovic, P. Atanassov, Y. Huang, I. Zenyuk, A. Di Cicco, K. Kumar, L. Dubau, **F. Maillard**, G. Dražić, F. Jaouen, “Identification of durable and non-durable FeN_x sites in Fe-N-C materials for proton-exchange membrane fuel cells”, *Nat. Catal.* **4** (2021) 10-19. DOI: [10.1038/s41929-020-00545-2](https://doi.org/10.1038/s41929-020-00545-2). ([hal-02931434v2](https://hal.archives-ouvertes.fr/hal-02931434v2))

P113. K. Kumar, T. Asset, X. Li, Y. Liu, X. Yan, Y. Chen, M. Mermoux, X. Pan, P. Atanassov, **F. Maillard**, L. Dubau, “Fe-N-C Electrocatalysts’ Durability: Effects of Single Atoms’ Mobility and Clustering”, *ACS Catal.* **11** (2021) 484-494. DOI: [10.1021/acscatal.0c04625](https://doi.org/10.1021/acscatal.0c04625). ([hal-03092479](https://hal.archives-ouvertes.fr/hal-03092479))

P114.# R. Sgarbi, K. Kumar, F. Jaouen, A. Zitolo, E. Ticianelli, **F. Maillard**, “Oxygen Reduction Reaction Mechanism and Kinetics on M-N_xC_y and M@N-C Active Sites Present in Model M-N-C Catalysts Under Alkaline and Acidic Conditions”, *J. Solid State Electrochem.* **25** (2021) 45-56, invited article in honour of the 70th birthday of Prof. Dr. José Zagal. DOI: [10.1007/s10008-019-04436-w](https://doi.org/10.1007/s10008-019-04436-w). ([hal-02397015](https://hal.archives-ouvertes.fr/hal-02397015))

P115. N. Coutard, B. Reuillard, T. Ngoc Huan, F. Valentino, R. T. Jane, S. Gentil, E. S. Andreiadis, A. Le Goff, T. Asset, **F. Maillard**, B. Jusselme, A. Morozan, S. Lyonard, V. Artero, P. Chenevier,

“Impact of Ionomer Structuration on The Performance of Bio-Inspired Noble-Metal-Free Fuel Cell Anodes”, *Chem. Catal.* **1** (2021) 1-18. [DOI: 10.1016/j.checat.2021.01.001](https://doi.org/10.1016/j.checat.2021.01.001). [hal-03126604](https://hal.archives-ouvertes.fr/hal-03126604)

P116.# C. Daiane Ferreira da Silva, F. Claudel, V. Martin, R. Chattot, S. Abbou, K. Kumar, I. Jiménez-Morales, S. Cavaliere, D. Jones, J. Rozière, L. Solà-Hernandez, C. Beauger, M. Faustini, J. Peron, B. Gilles, C. Beauger, L. Piccolo, F. H. Barros de Lima, L. Dubau, **F. Maillard**, “Oxygen Evolution Reaction Activity and Stability Benchmarks for Supported and Unsupported IrO_x Electrocatalysts”, *ACS Catal.* **11** (2021) 4107-4116. [DOI: 10.1021/acscatal.0c04613](https://doi.org/10.1021/acscatal.0c04613). [hal-03195339](https://hal.archives-ouvertes.fr/hal-03195339)

P117. I. Martens, R. Chattot, T. Wiegmann, T. Fuchs, O. M. Magnussen, L. Dubau, **F. Maillard**, J. Drnec, “Towards Comprehensive Understanding of Proton-Exchange Membrane Fuel Cells Using High Energy X-rays”, *invited article, J. Phys. Energy* **3** (2021) 031003. [DOI: 10.1088/2515-7655/abf43d](https://doi.org/10.1088/2515-7655/abf43d). [hal-03189549](https://hal.archives-ouvertes.fr/hal-03189549)

P118. I. Martens, A. Vamvakeros, N. Martinez, R. Chattot, J. Pusa, M. Valeria Blanco, E. A. Fisher, T. Asset, S. Escribano, F. Micoud, T. Starr, A. Coelho, V. Honkimäki, D. Bizzotto, D. P. Wilkinson, S. D.M. Jacques, **F. Maillard**, L. Dubau, S. Lyonard, A. Morin, J. Drnec, “Imaging heterogeneous electrocatalyst stability and decoupling degradation mechanisms in operating hydrogen fuel cells”, *ACS Energy Lett.* **6** (2021) 2742-2749. [DOI: 10.1021/acsenergylett.1c00718](https://doi.org/10.1021/acsenergylett.1c00718). [hal-03290343](https://hal.archives-ouvertes.fr/hal-03290343)

P119.# R. Sgarbi, K. Kumar, V. Saveleva, L. Dubau, R. Chattot, V. Martin, M. Mermoux, P. Bordet, P. Glatzel, E. A. Ticianelli, F. Jaouen, **F. Maillard**, “Electrochemical Transformation of Fe-N-C catalysts into Iron Oxides in Alkaline Medium and Its Impact on the Oxygen Reduction Reaction Activity”, *Appl. Catal. B.* **311** (2022) 121366. [DOI: 10.1016/j.apcatb.2022.121366](https://doi.org/10.1016/j.apcatb.2022.121366). [hal-03641899](https://hal.archives-ouvertes.fr/hal-03641899).

P120. R. Chattot, C. Roiron, K. Kumar, V. Martin, C. A. Campos Roldan, M. Mirolo, I. Martens, L. Castanheira, A. Viola, R. Bacabe, S. Cavaliere, P.-Y. Blanchard, L. Dubau, **F. Maillard**, J. Drnec, “Break-in Bad: on the Conditioning of Fuel Cell Nanoalloy Catalysts”, *ACS Catal.* **12** (2022) 15675–15685. [DOI: 10.1021/acscatal.2c04495](https://doi.org/10.1021/acscatal.2c04495). [hal-03887640](https://hal.archives-ouvertes.fr/hal-03887640)

P121. H. Ge, F. Jaouen, N. Bibent, M. Dupont, F. Lecoer, K. Teixeira Santos, K. Kumar, L. Dubau **F. Maillard**, S. Berthon-Fabry, “Modulating the Fe-N₄ Active Site Content by Nitrogen Source in Fe–N–C Aerogel Catalysts for Proton Exchange Membrane Fuel Cell”, *ACS Catal.* **13** (2023) 1149-1163. [DOI: 10.1021/acscatal.2c05394](https://doi.org/10.1021/acscatal.2c05394). [hal-03940872](https://hal.archives-ouvertes.fr/hal-03940872)

P122. N. Neha, T. Rafaïdeen, T. Faverge, **F. Maillard**, M. Chatenet, C. Coutanceau, “Revisited mechanisms for glucose electrooxidation at platinum and gold nanoparticles”, *Electrocatalysis* **14** (2023) 121-130. [DOI: 10.1007/s12678-022-00774-y](https://doi.org/10.1007/s12678-022-00774-y). [Cover Feature for Volume 14/01 of Electrocatalysis \(Springer\)](https://www.springer.com/journal/10073). [hal-03780110](https://hal.archives-ouvertes.fr/hal-03780110)

P123. R. Chattot, M. Mirolo, I. Martens, K. Kumar, V. Martin, A. Gasmi, L. Dubau, **F. Maillard**, L. Castanheira, J. Drnec, “Beware of Cyclic Voltammetry! Measurement Artefact in Accelerated Stress Test of Fuel Cell Cathode Revealed by *Operando* X-ray Diffraction”, *invited article, special issue of J. Power Sources on low temperature fuel cells and electrolyzers. J. Power Sources*, **555** (2023) 232345. [DOI: 10.1016/j.jpowsour.2022.232345](https://doi.org/10.1016/j.jpowsour.2022.232345). [hal-03869671](https://hal.archives-ouvertes.fr/hal-03869671)

- P124.** L. A. Zavala, K. Kumar, V. Martin, **F. Maillard**, F. Maugé, X. Portier, L. Oliviero, L. Dubau, “Direct evidence of the role of Co or Pt,Co single atom promoters on the performance of MoS₂ nanoclusters for hydrogen evolution reaction”. *ACS Catal.* **13** (2023) 1221-1229. DOI: [10.1021/acscatal.2c05432](https://doi.org/10.1021/acscatal.2c05432). [hal-03912300](https://hal.archives-ouvertes.fr/hal-03912300)
- P125.** V. A. Saveleva, K. Kumar, P. Theis, N. Segura Salas, U. I. Kramm, F. Jaouen, **F. Maillard**, P. Glatzel, “Fe-N-C electrocatalyst and its electrode: are we talking about the same material?” *ACS Appl. Energy Mater.* **6** (2023) 611-616. DOI: [10.1021/acsaem.2c03736](https://doi.org/10.1021/acsaem.2c03736). [hal-03920156](https://hal.archives-ouvertes.fr/hal-03920156)
- P126.** T. Faverge, B. Gilles, A. Bonnefont, **F. Maillard**, C. Coutanceau, M. Chatenet, “*In situ* investigation of D-glucose, gluconic acid and sorbitol oxidation on Au, Pt and Pd under alkaline conditions: a comparative study” *ACS Catal.* **13** (2023) 2657-2669. DOI: [10.1021/acscatal.2c05871](https://doi.org/10.1021/acscatal.2c05871). [hal-04004882v1](https://hal.archives-ouvertes.fr/hal-04004882v1)
- P127.** J. Barrio, A. Pedersen, S. Ch. Sarma, A. Bagger, M. Gong, S. Favero, C-X. Zhao, R. Garcia-Serres, A. Y. Li, Q. Zhang, F. Jaouen, **F. Maillard**, A. Kucernak, I. E. L. Stephens, M-M. Titirici, “Templated Synthesis of a Porous Penta-Coordinated FeN_x O₂ Reduction Electrocatalyst in Acidic Media with High Fe Utilisation”, *Adv. Mater.* **35** (2023) 2211022. DOI: [10.1002/adma.202211022](https://doi.org/10.1002/adma.202211022). [hal-03984630](https://hal.archives-ouvertes.fr/hal-03984630)
- P128.** # C. Atlan, C. Chatelier, I. Martens, M. Dupraz, A. Viola, N. Li, L. Gao, S.J. Leake, T.U. Schüllli, J. Eymery, **F. Maillard**, M.-I. Richard, “Imaging the evolution of strain in platinum nanoparticles under electrochemical control”, *Nature Mater.* **22** (2023) 754–761. DOI: [10.1038/s41563-023-01528-x](https://doi.org/10.1038/s41563-023-01528-x). Previously: DOI: [10.48550/arXiv.2203.06941](https://doi.org/10.48550/arXiv.2203.06941). [hal-04090004](https://hal.archives-ouvertes.fr/hal-04090004)
- P129.** # K. Teixeira Santos, K. Kumar, L. Dubau, H. Ge, S. Berthon Fabry, C. S. Vasconcelos, F.H.B. Lima, T. Asset, P. Atanassov, V. A. Saveleva, P. Glatzel, X. Li, N. Bibent, F. Jaouen, **F. Maillard**, “Spontaneous aerobic ageing of Fe-N-C materials and consequences on oxygen reduction reaction kinetics”, *invited article*, special issue of J. Power Sources on low temperature fuel cells and electrolyzers. *J. Power Sources*, **564** (2023) 232829. DOI: [10.1016/j.jpowsour.2023.232829](https://doi.org/10.1016/j.jpowsour.2023.232829). [hal-04005348](https://hal.archives-ouvertes.fr/hal-04005348)
- P130.** S. Ünsal, R. Girod, C. Appel, D. Karpov, M. Mermoux, **F. Maillard**, V. A. Saveleva, V. Tileli, T. J. Schmidt, J. Herranz, “Decoupling the contributions of different instability mechanisms to the PEMFC performance decay of non-noble metal O₂-reduction catalysts” *J. Am. Chem. Soc.* **145** (2023) 7845-7858. DOI: [10.1021/jacs.2c12751](https://doi.org/10.1021/jacs.2c12751). [hal-04089928](https://hal.archives-ouvertes.fr/hal-04089928)
- P131.** # K. Kumar, L. Dubau, F. Jaouen, **F. Maillard**, “Review on the Degradation Mechanisms of Metal-N-C Catalysts for the Oxygen Reduction Reaction in Acid Electrolyte: Current Understanding and Mitigation Approaches”, *Chem. Rev.* **123** (2023) 9265–9326. DOI: [10.1021/acs.chemrev.2c00685](https://doi.org/10.1021/acs.chemrev.2c00685). [hal-04160691](https://hal.archives-ouvertes.fr/hal-04160691)
- P132.** V. A. Saveleva, M. Retegan, K. Kumar, **F. Maillard**, P. Glatzel, “New insights on Fe-N-C catalyst structure from valence-to-core X-ray emission and absorption spectroscopies “, *invited article* in the special issue of *J. Mater. Chem. A* for 2023 Emerging Investigators Themed Collection. *J. Mater. Chem. A*, **11** (2023) 18862-18871. DOI: [10.1039/D3TA02878J](https://doi.org/10.1039/D3TA02878J). [hal-04206396](https://hal.archives-ouvertes.fr/hal-04206396)

- P133.** # A. Viola, R. Chattot, V. Martin, J. Nelayah, J. Drnec, **F. Maillard**, “Hydrogen Trapping in Palladium Nanoparticles Revealed by Electrochemical, X-ray Scattering, and Spectrometric Measurements”, *J. Phys. Chem. C.*, **127** (2023), 17761–17769. DOI: [10.1021/acs.jpcc.3c04464](https://doi.org/10.1021/acs.jpcc.3c04464). [\(hal-04223367\)](#)
- P134.** A. Pedersen, J. M. Barrio, A. Bagger, **F. Maillard**, I. E. L. Stephens, M.-M. Titirici, “Atomic Metal Coordinated to Nitrogen-doped Carbon Electrocatalysts for Proton Exchange Membrane Fuel Cells: A Perspective on Progress, Pitfalls and Prospectives”, *invited article*, special issue of *J. Mater. Chem. A. (10 year anniversary)*, **11** (2023) 23211-23222. DOI: [10.1039/D3TA04711C](https://doi.org/10.1039/D3TA04711C) [\(hal-04279349\)](#)
- P135.** # C. Roiron, V. Martin, K. Kumar, L. Dubau, **F. Maillard**, “Assessing Pt and Ni dissolution from shape-controlled oxygen reduction nanocatalysts with *in situ* inductively coupled plasma mass spectrometry”, *invited article*, special Issue of *Electrochim. Acta* dedicated to the 74th ISE Meeting, (2024) 143760. DOI: [10.1016/j.electacta.2024.143760](https://doi.org/10.1016/j.electacta.2024.143760). [\(hal-04392526\)](#)
- P136.** C. M. Schott, K. Sadraoui, P. M. Schneider, K.-T. Song, B. Garlyyev, S. A. Watzele, J. Michalička, J. Macak, A. Viola, **F. Maillard**, A. Senyshyn, A. S. Bandarenka, E. L. Gubanov, “Top-down surfactant-free synthesis of supported palladium nanostructured catalysts”, *Small Science*. (2024) 2300241. DOI: [10.1002/smssc.202300241](https://doi.org/10.1002/smssc.202300241). [\(hal-04395364\)](#)
- P137.** T. Srour, K. Kumar, V. Martin, L. Dubau, **F. Maillard**, B. Gilles, J. Dillet, S. Didierjean, B. Amoury, T.D. Le, G. Maranzana, “On the contact resistance between the anode and the porous transport layer in a proton exchange membrane water electrolyzer”, *Int. J. Hydrogen Energy*. **58** (2024)351-361. DOI: [10.1016/j.ijhydene.2024.01.134](https://doi.org/10.1016/j.ijhydene.2024.01.134). [\(hal-04414456\)](#)
- P138.** P. M. Schneider, C. M. Schott, D. Maier, S. A. Watzele, J. Michalička, J. Rodriguez-Pereira, L. Hromadkoc, J. Macak, V. Barand, A. Senyshyn, A. Viola, **F. Maillard**, E. L. Gubanov, A. S. Bandarenka, “Top-Down Surfactant-Free Electrosynthesis of Magnéli phase Ti₉O₁₇ Nanowires”, *Materials Advances*. (2024). DOI: [10.1039/D3MA00968H](https://doi.org/10.1039/D3MA00968H). [\(hal-04440512\)](#)
- P139.** # A. Viola, **F. Maillard**, G. Tsirlina, “Voltammetric quantification of H: Pd ratio of H: Pd ratio complicated by $\alpha \leftrightarrow \beta$ phase transition in PdH_x: electrodes with low Pd loadings”, accepted in the Special Issue of *Electrochim. Acta* dedicated to the 74th ISE Meeting. *Invited article*. (2024)