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# Publications 2020

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[2022](#) [2021](#) **2020**

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Cini, A., Poggini, L., Chumakov, A. I., Ruffer, R., Spina, G., **Wattiaux, A., Duttine, M.**, Gonidec, M., Fittipaldi, M., Rosa, P. & Mannini, M.

"Synchrotron-based Mössbauer spectroscopy characterization of sublimated spin crossover molecules."

*Physical Chemistry Chemical Physics* 22(12) (2020) 6626-6637.

[DOI : 10.1039/C9CP04464G](https://doi.org/10.1039/C9CP04464G)

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Cotin, G., Perton, F., Petit, C., Sall, S., Kiefer, C., Begin, V., Pichon, B., Lefevre, C., Mertz, D., **Grenèche, J.-M.** & Begin-Colin, S.

"Harnessing composition of iron oxide nanoparticle : impact of solvent mediated ligand-ligand interaction and of competition between oxidation and growth kinetics"

*Chem. Mater.* 32 (2020) 9245-9259

[DOI : 10.1021/acs.chemmater.0c03041](https://doi.org/10.1021/acs.chemmater.0c03041)

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M. J. Dzara, K. Artyushkova, **M. T. Sougrati**, C. Ngo, M. A. Fitzgerald, A. Serov, B. Zulevi, P. Atanassov, F. Jaouen & S. Pylypenko

"Characterizing Complex Gas-Solid Interfaces with in Situ Spectroscopy : Oxygen Adsorption Behavior on Fe-N-C Catalysts"

*Journal of Physical Chemistry C* 124 (2020) 16529-16543

[DOI : 10.1021/acs.jpcc.0c05244](https://doi.org/10.1021/acs.jpcc.0c05244)

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Doggaz, A., **Coustel, R.**, Durand, P., Humbert, F. & Ruby, C.

"Birnessite : a new oxydant for Green Rust formation"

*Materials* 13 (2020) 3777

[DOI : 10.3390/ma13173777](https://doi.org/10.3390/ma13173777)

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Duboscq, M., **Abdelmoula, M.**, Remazeilles, C., Jeannin, M., Sabot, R. & Refait, Ph.

"On the formation and transformation of Fe(III)-containing chukanovite,  $Fe_{1-2-x}Fe_{1+x}(OH)_2 \cdot xO \cdot CO_3$ "

*Journal of Physics and Chemistry of Solids* 138 (2020) 109310

[DOI : 10.1016/j.jpcs.2019.109310](https://doi.org/10.1016/j.jpcs.2019.109310)

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F. Eveillard, C. Gervillie, C. Taviot-Gueho, F. Leroux, K. Guerin, **M. T. Sougrati**, S. Belin & D. Delbecq

"Unravelling lithiation mechanisms of iron trifluoride by operando X-ray absorption spectroscopy and MCR-ALS chemometric tools"

*New Journal of Chemistry* 44 (2020) 10153-10164

[DOI : 10.1039/c9nj06321h](https://doi.org/10.1039/c9nj06321h)

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M. Fehse, D. Bessas, A. Mahmoud, A. Diatta, R. P. Hermann, L. Stievano & **M. T. Sougrati**

"The Fe<sup>4+/3+</sup> redox mechanism in NaFeO<sub>2</sub> : A simultaneous operando Nuclear Resonance and X-ray Scattering study"

*Batteries & Supercaps* 3 (2020) 1341-1349

[DOI : 10.1002/batt.202000157](https://doi.org/10.1002/batt.202000157)

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Franceschin, G., Gaudisson, T., Perez Quiros, S., Yaacoub, N., **Grenèche, J.-M.**, Menguy, N., Mercone, S., Mazaleyrat, F. & Ammar, S.

"Exchange-bias features in nanoceramics prepared by spark plasma sintering of exchange-biased nanopowders"

*Journal of Materials Chemistry C* 8 (2020) 5941-594

[DOI : 10.1039/d0tc00428f](https://doi.org/10.1039/d0tc00428f)

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Fujieda, S., Gaudisson, T., **Grenèche, J.-M.**, François, M. & Ammar, S.

"Synthesis of Magnetic Wires from Polyol-Derived Fe-Glycolate Wires"

*Nanomaterials* 10 (2020) 318

[DOI : 10.3390/nano10020318](https://doi.org/10.3390/nano10020318)

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**Garcia, Y.**

"Selected polyazole based coordination polymers displaying functional properties"

*Adv. Inorg. Chem.* 76 (2020) 121-153.

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T. Kosmala, N. Bibent, **M. T. Sougrati**, G. Drazic, S. Agnoli, F. Jaouen & G. Granozzi

"Stable, Active, and Methanol-Tolerant PGM-Free Surfaces in an Acidic Medium : Electron Tunneling at Play in Pt/FeNC Hybrid Catalysts for Direct Methanol Fuel Cell Cathodes"

*ACS Catalysis* 10 (2020) 7475-7485

[DOI : 10.1021/acscatal.0c01288](https://doi.org/10.1021/acscatal.0c01288)

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Kumar, V., El Massaoudi, M., Radi, S., Van Hecke, K., Rotaru, A. & **Garcia, Y.**

"Iron(II) coordination pyrazole complexes with aromatic sulfonate ligands : the role of ether"

*New J. Chem.* 44 (2020) 13902 - 13912.

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Kumar, V., Fusaro, L., Aprile, C., Robeyns, K. & **Garcia, Y.**

"[2+2] photodimerization of sulfonate derivative of trans-cinnamic acid : Kinetics study using solid state <sup>13</sup>C NMR, and hybrid material inclusion"

*Cryst. Growth Des.* 20 (2020) 7850-7861.

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Lemoine, K., Moury, R., Lhoste, J., Hémon-Ribaud, A., Leblanc, M., **Grenèche, J.-M.**, Tarascon, J.-M. & Maisonneuve, V.

"Stabilization of a mixed iron vanadium based hexagonal tungsten bronze hydroxyfluoride

HTB-(Fe<sub>0.55</sub>V<sub>0.45</sub>)F<sub>2.67</sub>(OH)<sub>0.33</sub> as a positive electrode for lithium-ion batteries"

*Dalton Trans.* 49 (2020) 8186-8193

[DOI : 10.1039/d0dt01310b](https://doi.org/10.1039/d0dt01310b)

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J. K. Li, L. Jiao, E. Wegener, L. L. Richard, E. S. Liu, A. Zitolo, **M. T. Sougrati**, S. Mukerjee, Z. P. Zhao, Y. Huang, F. Yang, S. C. Zhong, H. Xu, A. J. Kropf, F. Jaouen, D. J. Myers & Q. Y. Jia  
"Evolution Pathway from Iron Compounds to Fe-1(II)-N-4 Sites through Gas-Phase Iron during Pyrolysis"  
*Journal of the American Chemical Society* 142 (2020) 1417-1423  
[DOI : 10.1021/jacs.9b11197](https://doi.org/10.1021/jacs.9b11197)

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J. K. Li, **M. T. Sougrati**, A. Zitolo, J. M. Ablett, I. C. Oguz, T. Mineva, I. Matanovic, P. Atanassov, Y. Huang, I. Zenyuk, A. Di Cicco, K. Kumar, L. Dubau, F. Maillard, G. Drazic & F. Jaouen  
"Identification of durable and non-durable Fe<sub>Nx</sub> sites in Fe-N-C materials for proton exchange membrane fuel cells"  
*Nature Catalysis* 4 (2020) 10-19  
[DOI : 10.1038/s41929-020-00545-2](https://doi.org/10.1038/s41929-020-00545-2)

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Lizhong Zhao & **Jean-Marc Grenèche**  
"On the magnetism of grain boundary phase and its contribution to the abnormal openness of recoil loops in hot-deformed magnets"  
*J. Phys. D : Appl. Phys.* 53 (2020) 095002  
[DOI : 10.1088/1361-6463/ab58e1](https://doi.org/10.1088/1361-6463/ab58e1)

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Lizhong Zhao, Chengli Li, Xuefeng Zhang, Sateesh Bandaru, Kunpeng Su, Xiaolian Liu, Qing Zhou, Lingwei Li, **Jean-Marc Grenèche**, Jiayin Jin & Mi Yan  
"Effects of Sm content on the phase structure, microstructure and magnetic properties of the Sm<sub>x</sub>Zr<sub>0.2</sub>(Fe<sub>0.8</sub>Co<sub>0.2</sub>)<sub>11.5</sub>Ti<sub>0.5</sub> (x<sub>1/0.8</sub>) alloys"  
*Journal of Alloys and Compounds* 828 (2020) 154428  
[DOI : 10.1016/j.jallcom.2020.154428](https://doi.org/10.1016/j.jallcom.2020.154428)

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Lizhong Zhao, Huacun Tian, Xichun Zhong, Zhongwu Liu, **Jean-Marc Grenèche** & R.V. Ramanujan  
"Influence of gadolinium and dysprosium substitution on magnetic properties and magnetocaloric effect of Fe<sub>78-x</sub>RE<sub>x</sub>Si<sub>4</sub>Nb<sub>5</sub>B<sub>12</sub>Cu<sub>1</sub> amorphous alloys"  
*Journal of Rare Earth* 38 (2020) 1317e1321  
[DOI : 10.1016/j.jre.2020.02.005](https://doi.org/10.1016/j.jre.2020.02.005)

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Lu, C., Kim, TH., Bendix, J., **Abdelmoula, M.**, Ruby, C., Nielsen, U. G. & Brun Hansen, H.C.  
"Stability of magnetic LDH composites used for phosphate recovery"  
*Journal of Colloid and Interface Science* 580 (2020) 660-668  
[DOI : 10.1016/j.jcis.2020.07.020](https://doi.org/10.1016/j.jcis.2020.07.020)

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F. Luo, A. R. Roy, L. Silvioli, D. A. Cullen, A. Zitolo, **M. T. Sougrati**, I. C. Oguz, T. Mineva, D. Teschner, S. Wagner, J. Wen, F. Dionigi, U. I. Kramm, J. Rossmeisl, F. Jaouen & P. Strasser  
"P-block single-metal-site tin/nitrogen-doped carbon fuel cell cathode catalyst for oxygen reduction reaction"  
*Nature Materials* 19 (2020) 1215  
[DOI : 10.1038/s41563-020-0717-5](https://doi.org/10.1038/s41563-020-0717-5)

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Mari, I., Vujaković, N., Pustak, A., Gotić, M., Štefanić, G., **Jean-Marc Grenèche**, Dračić, G. & Jurkin, T.  
"Rheological, Microstructural and Thermal Properties of Magnetic Poly(Ethylene Oxide)/Iron Oxide Nanocomposite Hydrogels Synthesized Using a One-Step Gamma-Irradiation Method"  
*Nanomaterials* 10 (2020) 1823 ;  
[DOI : 10.3390/nano10091823](https://doi.org/10.3390/nano10091823)

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Mosser-Ruck, R., Stermenich, J., Michau, N., Jodin-Caumon, M., Randi, A., **Abdelmoula, M.**, Barrès, O. & Cathelineau, M.  
"Serpentinization and H<sub>2</sub> production during an iron-clay interaction experiment at 90°C under low CO<sub>2</sub> pressure"  
*Applied Clay Science* 191 (2020) 105609  
[DOI : 10.1016/j.clay.2020.105609](https://doi.org/10.1016/j.clay.2020.105609)

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Odin, G. P., Belhadj, O., Vanmeert, F., Janssens, K., **Wattiaux, A.**, François, A. & Rouchon, V.  
"Study of the influence of water and oxygen on the morphology and chemistry of pyritized lignite : Implications for the development of a preventive drying protocol."  
*Journal of Cultural Heritage* 42 (2020) 117-130.  
[DOI : 10.1016/j.culher.2019.08.004](https://doi.org/10.1016/j.culher.2019.08.004)

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Ona-Nguema, G., Guerbois, D., Pallud, C., Brest, J., **Abdelmoula, M.** & Morin, G.  
"Biogenic Fe(II-III) hydroxycarbonate green rust enhances nitrate removal and decreases ammonium selectivity during heterotrophic denitrification"  
*Minerals* 10(9) (2020) 818  
[DOI : 10.3390/min10090818](https://doi.org/10.3390/min10090818)

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M. Primbs, Y. Y. Sun, A. Roy, D. Malko, A. Mehmood, **M. T. Sougrati**, P. Y. Blanchard, G. Granozzi, T. Kosmala, G. Daniel, P. Atanassov, J. Sharman, C. Durante, A. Kucernak, D. Jones, F. Jaouen & P. Strasser  
"Establishing reactivity descriptors for platinum group metal (PGM)-free Fe-N-C catalysts for PEM fuel cells"  
*Energy & Environmental Science* 13 (2020) 2480-2500  
[DOI : 10.1039/d0ee01013h](https://doi.org/10.1039/d0ee01013h)

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Rabi, B., Essoumhi, A., Sajieddine, M., **Grenèche, J.-M.**, EK Hlil, Razouk, A. & Valente, M.A.  
"Structural, magnetic and magnetocaloric study of Ni<sub>0.5</sub>Zn<sub>0.5</sub>Fe<sub>2</sub>O<sub>4</sub> spinel"  
*Applied Physics A* 126 (2020) 1-11  
[DOI : 10.1007/s00339-020-3344-8](https://doi.org/10.1007/s00339-020-3344-8)

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Rakotomalala Robinson, M., Coustel, R., **Abdelmoula, M.** & Mallet, M.  
"As(V) and As(III) sequestration by starch functionalized magnetite nanoparticles : influence of the route onto the trapping efficiency"  
*Science and Technology of Advanced Materials* 21(1) (2020) 524-539  
[DOI : 10.1080/14686996.2020.1782714](https://doi.org/10.1080/14686996.2020.1782714)

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Sartori, K., Gailly, D., Bouillet, C., **Grenèche, J.-M.**, Dueñas-Ramirez, P., Begin-Colin, S., Choueikani, F. & Pichon, B. P.

"Increasing the size of Fe<sub>3</sub>-O<sub>4</sub> Nanoparticles by Performing a Multistep Seed-Mediated Growth Approach"  
*Cryst. Growth Des.* 20(3) (2020) 1572-1582

[DOI : 10.1021/acs.cgd.9b01300](https://doi.org/10.1021/acs.cgd.9b01300)

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R. Sibul, E. Kibena-Poldsepp, S. Ratso, M. Kook, **M. T. Sougrati**, M. Kaarik, M. Merisalu, J. Aruvali, P. Paiste, A. Treshchalov, J. Leis, V. Kisand, V. Sammelselg, S. Holdcroft, F. Jaouen & K. Tammeveski

"Iron- and Nitrogen-Doped Graphene-Based Catalysts for Fuel Cell Applications"

*Chemelectrochem* 7 (2020) 1739-1747

[DOI : 10.1002/celec.202000011](https://doi.org/10.1002/celec.202000011)

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Soulmi, N., Porrás-Gutiérrez, A. G., Rizzi, C., Sirieix-Plénet, J., Gaillon, L., Groult, H., Rollet, A.-L., Umut, E., **Duttine, M.**, Borkiewicz, O. J., Lebedev, O. I. & Dambournet, D.

"Sn-based alloys synthesized in an ionic liquid at room temperature : Cu<sub>6</sub>Sn<sub>5</sub> as a case study."

*ChemNanoMat* 6(4) (2020) 639-647.

[DOI : 10.1002/cnma.201900718](https://doi.org/10.1002/cnma.201900718)

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N. Soulmi, **M. T. Sougrati**, **L. Stievano**, A. G. P. Gutierrez, O. I. Lebedev, C. Rizzi, J. Sirieix-Plénet, L. Gaillon, H. Groult & D. Dambournet

"Lithium-driven conversion and alloying mechanisms in core-shell Sn/SnO<sub>x</sub> nanoparticles"

*Solid State Sciences* 101 (2020) 106153

[DOI : 10.1016/j.solidstatesciences.2020.106153](https://doi.org/10.1016/j.solidstatesciences.2020.106153)

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Vallés-García, C., Gkaniatsou, E., Santiago-Portillo, A., Gimenez-Marques, M., Alvaro, M., **Grenèche, J.-M.**, Steunou, N., Sicard, C., Navalon, S., Serre, C. & García, H.

"Design of stable mixed-metal MIL-101(Cr/Fe) materials with enhanced catalytic activity for the Prins reaction"

*J. Mater. Chem. A* 8 (2020) 17002

[DOI : 10.1039/d0ta02991b](https://doi.org/10.1039/d0ta02991b)

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Villacorta, V., Augusto Barrero, C., Turrion, M.-B., Lafuente, F., **Grenèche, J.-M.** & García, K. E.

"Removal of As<sup>3+</sup>, As<sup>5+</sup>, Sb<sup>3+</sup>, and Hg<sup>2+</sup> ions from aqueous solutions by pure and co-precipitated akaganeite nanoparticles : adsorption kinetics studies"

*RSC Adv.* 10 (2020) 42688

[DOI : 10.1039/d0ra08075f](https://doi.org/10.1039/d0ra08075f)

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M. Worle, C. P. Guntlin, L. Gyr, **M. T. Sougrati**, C. H. Lambert, K. V. Kravchyk, R. Zenobi & M. V. Kovalenko

"Structural Evolution of Iron(III) Trifluoroacetate upon Thermal Decomposition : Chains, Layers, and Rings"

*Chemistry of Materials* 32 (2020) 2482-2488

[DOI : 10.1021/acs.chemmater.9b05004](https://doi.org/10.1021/acs.chemmater.9b05004)

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