

Thèmes de recherche

- Synthèse et caractérisation des matériaux polymères photoactifs pour application photovoltaïque.
- Réalisation et tests des cellules solaires photovoltaïques organiques.
- Réplication de Micro/Nano structure en surface d'objets en polymères

Thématiques actuelles

- Cellules photovoltaïques organiques et hybrides
- Micro/nano texturation de surface polymère
- Matériaux pour l'énergie

Publications

- El-Moussawi, Z., **Nourdine, A.**, Flandin, L., "A Key Progress in Introducing Single Walled Carbon Nanotubes to Photovoltaic Devices", [Applied Nanoscience](#), 2020.
- El Aboudi, I., Mdarhri, A., Lame, O., Brosseau, C., **Nourdine, A.**, Fabrègue, D., Bonnefont, G., "Analyzing the microstructure and mechanical properties of polytetrafluoroethylene fabricated by field-assisted sintering", [Polymer](#), 203, 122810, 2020.
- El Aboudi, I., Mdarhri, A., Brosseau, C., **Nourdine, A.**, Rzaisi, M., Servant, L., "Comparing the sorption kinetics of polytetrafluoroethylene processed either by extrusion or spark plasma sintering", [Polymer](#), 190, 122192, 2020.
- Fredj, D., Alkarsifi, R., Pourcin, F., Liu, X., Chniba-Boudjada, N., Pierron, P., **Nourdine, A.**, Boujelbene, M., Fahlman, M., Vidélot-Ackermann, C., Flandin, L., Ben Dkhil, S., Margeat, O., Ackermann, J., "A new antimony-based organic-inorganic hybrid material as electron extraction layer for efficient and stable polymer solar cells", [ACS Applied Materials & Interfaces](#), 11, 44820-44828, 2019.
- El-Moussawi, Z., **Nourdine, A.**, Medlej, H., Toufaily, J., Hamieh, T., Chenevier, P., Flandin, L., "Fine Tuning of Optoelectronic Properties of Single-Walled Carbon Nanotubes from Conductors to Semiconductors", [Carbon](#), 153, 337-346, 2019.
- Lecarme, L., Consonni, V., Lafolet, F., Cossuet, T., Mermoux, M., Sauvage, F., **Nourdine, A.**, Leprêtre, J. C., "ZnO Nanowires as promotor for High Photo-Induced Efficiency and Voltage Gain for Cathode Battery Recharge", [ACS Applied Energy Materials](#), 2, 6254-6262, 2019.
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- Elhaouzi, F., **Nourdine, A.**, Brosseau, C., Mdarhri, A., Elaboudi, I., Zaghrioui, M., "Hyperelastic Behavior and Dynamic

Mechanical Relaxation in Carbon Black-Polymer Composites", [Polymer Composites](#), 40, 3005-3011, 2018.

- Dubelley, F., **Nourdine, A.**, Giboz, J., Carrier, S., Molmeret, Y., Tanchine, L., Fillon, B., Mélé, P., "New ways to Nanotexture model Polymer Surface", [Proceedings to World Congress on Micro and Nano Manufacturing](#), 2018.
 - **Nourdine, A.**, Flandin, L., Albérola, N., Perrin, L., Planes, E., Hiltner, A., Baer, E., "Extrusion of a nano-ordered active layer for organic photovoltaic cells", [Sustainable Energy & Fuels](#), 1, 2016-2027, 2017.
 - **Nourdine, A.**, Perrin, L., Carrot, C., Baer, E., Flandin, L., Albérola, N., "Compatibility of C₆₀ grafted polystyrene/P3OT: Towards the extrusion of photoactive materials", [European Polymer Journal](#), 96, 1-9, 2017.
 - El-Moussawi, Z., Medlej, H., **Nourdine, A.**, Berson, S., Toufaily, J., Hamieh, T., Flandin, L., "Development of Dithienosilole-pyridalithiadiazole-based Copolymer as an Electron Donor in Organic Photovoltaic Cells", [IEEE Transactions on Nanotechnology](#), 16, 4, 574-581, 2017.
 - El-Moussawi, Z., Medlej, H., **Nourdine, A.**, Berson, S., Toufaily, J., Hamieh, T., Flandin, L., "A Near-IR Absorbing Copolymer for Nanoarchitected Solution-Processable Photovoltaic Devices: Synthesis and Application", [Proceeding to 11th IEEE Nanotechnology Materials and Devices Conference NMDC2016](#), 1-2, 2016.
 - Medlej, H., **Nourdine, A.**, Awada, H., Abbas, M., Dagron-Lartigau, C., Wantz, G., Flandin, L., "Fluorinated benzothiadiazole-based low band gap copolymers to enhance open-circuit voltage and efficiency of polymer solar cells", [European Polymer Journal](#), 59, 25-35, 2014.
 - **Nourdine, A.**, Perrin, L., Alberola, N., Flandin, L., "Extrusion as plausible processing method for production of organic photovoltaic solar cells Photovoltaic", [proceeding to 40th IEEE Specialist Conference PVSC2014](#), 2581-2583, 2014.
 - Medlej, H., **Nourdine, A.**, Awada, H., Abbas, M., Dagron-Lartigau, C., Wantz, G., Flandin, L., "Synthesis and Photovoltaic Properties of a New Donor-Acceptor Conjugated Polymer Based on Fluorinated Benzothiadiazole Units", [proceeding to 40th IEEE Specialist Conference PVSC2014](#), 1766-1769, 2014.
 - Perrin, L., **Nourdine, A.**, Planes, E., Carrot, C., Albérola, N., Flandin, L., "Fullerene-based processable polymers as plausible acceptors in photovoltaic applications", [Journal of Polymer Science Part B: Polymer Physics](#), 51, 4, 291-302, 2013.
 - **Nourdine, A.**, Perrin, L., De Bettignies, R., Guillerez, S., Flandin, L., Albérola, N., "Synthesis and characterization of fullerene based systems for photovoltaic applications: Evidence for percolation threshold", [Polymer](#), 52, 26, 6066-6073, 2011.
- ### Communications orales en conférences internationales :
- (La présentation a été réalisée par la personne dont le nom est souligné)
- **Resende, J.**, Sannicolas, T., Khan, A., Nguyen, V., Papanastasiou, D.T., **Nourdine, A.**, Aghazadehchors, Charvin, N., S., Muñoz-Rojas, D., Jiménez, C., Nguyen, N.D., Flandin, L., Bellet, D., "Transparent Conductive Metal Networks and Oxide Thin Films", [Materials 2019, 2019-04-14_17](#), Lisbon (PT).

- **Nourdine, A.**, Flandin, L., Albérola, N., Perrin, L., Planes, E., Hiltner, A., Baer, E., "Extrusion Process for Production of Organic Photovoltaic Cells: proof of concept", **AEMC2019-European Advanced Energy Materials Congress, 2019-03-24_27**. Stockholm (SE).
- **Fredj, D., Nourdine, A.**, Pourcin, F., Ben Dkhil, S., Vernet, J., Cruchon, B., Pierron P., Lionel Flandin, L., "High-Performance inkjet Printed Flexible Organic solar cells and modules Using Silver nanowires as Transparent Electrode", **AOHM-Advances in Organic and Hybrid Electronic Materials, 2019-03-17_20**. Dubrovnik (HRV)
- **Resende, J.**, Sannicolo, T., Khan, A., Charvin, N., **Nourdine, A.**, Papanastasiou, D.T., Nguyen, V., Aghazadehchors, S., Muñoz-Rojas, D., Jiménez, C., Nguyen, N.D, Flandin, L., Bellet, D., "Optimizing the properties of transparent electrodes based on silver nanowire networks for integration into organic solar cells ", **MRS Fall meeting 2018, 2018-11-25_30**. Boston (USA).
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- **El-Moussawi, Z., Nourdine, A.**, Medlej, H., Toufaily, J., Hamieh, T., Chenevier, P., Flandin, L., "SWCNT with tunable electrical and optical properties: from conductor to semiconductor", **AEMC2018-European Advanced Energy Materials Congress, 2018-03-25_28**. Stockholm (SE).
- **Nourdine, A.**, Flandin, L., Albérola, N., Perrin, L., Planes, E., Hiltner, A., Baer, E., "Nano-Extrusion Process for Production of Organic Photovoltaic Cells: Proof of Concept", **PPS33- 33rd Annual Meeting of the Polymer Processing Society, 2017-12-10_14**. Cancun (MX).
- **El-Moussawi, Z., Medlej, H., Nourdine, A.**, Berson, S., Toufaily, J., Hamieh, T., Flandin, L., "Low Band Gap Near-IR Conjugated Copolymer Based on Dithienosilole and Pyridalithiadiazole for enhanced Voc in OPV Cells", **AEM2017-2nd International Conference on Advanced Energy Materials, 2017-09-11_13**. Guildford (GB).
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- **Nourdine, A.**, Perrin, L., Flandin, L., Albérola, N. D., "Bulk-heterojunction based on donor and acceptor polymers via extrusion process for photovoltaic application", **EPF2013-European Polymer Congress, 2013-07-17_21**. Pisa (IT).
- **Flandin, L., Nourdine, A.**, Perrin, L., Albérola, N. D., "A step towards extrudable photovoltaic: the synthesis of donor and acceptor polymers", **242nd ACS National Meeting, 2011-08-28_2011-09-01**. Denver, Colorado (USA)
- **Perrin, L., Nourdine, A.**, Planes, E., Flandin, L., Albérola, N. D., "Synthesis and characterization of photoactive and extrudable polymers in view of developing a new solvent-free process for production of organic solar cells", **EPF2011-European Polymer Congress, 2011-06-26_2011-07-01**. Grenada (SP).
- **Perrin, L., Nourdine, A.**, Flandin, L., Albérola, N. D., "Multilayered polymer organization for organic photovoltaic", **IS-FOE10-3rd International Symposium on Flexible Organic Electronics. 2010-07-06_09**. Ouranoupolis (Greece).