PUBLICATIONS PEER-REVIEWED

Nanotubes for improving the properties of cement-based materials (a collaboration between academy and industry in Guatemala)

1. Effect of additions of multiwall carbon nanotubes (MWCNT, MWCNT-COOH and MWCNT-Thiazol) in mechanical compression properties of a cement-based materials. Arrechea, S.; Guerrero-Gutiérrez, E. M.A.; Velásquez, L.; Cardona, J; Posadas, R.; Callejas, K.; Torres, S.; Díaz, R.; Barrientos, C.; García, E. Materialia, 2020, 11, 100739. https://doi.org/10.1016/j.mtla.2020.100739.

Novel materials based on porphyrins for solar cells of third-generation (Bulk Heterojunction Solar Cells and Dye-Sensitized Solar Cells)

2. New cyclopentadithiophene (CDT) linked porphyrin donors with different end-capping acceptors for efficient small molecule organic solar cells. Arrechea, S.; Aljarilla, A.; de la Cruz, P.; Kumar, P.; Sharma, G. D.; Langa, F. J. Mater. C. 2017, 5, 4742. https://doi.org/10.1039/C7TC00812K
3. Efficiency Improvement Using Bis(trifluoromethane) Sulfonamide Lithium Salt as Chemical Additive in Porphyrin Based Organic Solar Cells. Arrechea, S.; Aljarilla, A.; de la Cruz, P.; Palomares, E.; Sharma, G. D.; Langa, F. Nanoscale, 2016, 8, 17953. https://doi.org/10.1039/C6NR06374H
4. High Photo-Current in Solution Processed Organic Solar Cells Based on Porphyrin Core A-<pi>-D-<pi>-A as Electron Donor Material. Montcada, N. F.; Arrechea, S.; Molina-Ontoria A.; Aljarilla, A. I.; de la Cruz, P.; Echegoyen, L.; Palomares, E.; Langa, F. Organic Electronics, 2016, 38, 330. https://doi.org/10.1016/j.orgel.2016.09.003
5. CuSCN as selective contact in solution-processed small-molecule organic solar cells leads to over 7% efficient porphyrin-based device. Móran, G. ; Arrechea, S. ; de la Cruz, P. ; Cuesta, V. ; Biswas, S. ; Palomares, E. ; Sharma, G. D. ; Langa, F. J. Mater. Chem. A, 2016, 4, 11009. https://doi.org/10.1039/C6TA04369K
6. Charge Recombination Losses in Thiophene-Substituted Porphyrin Dye-Sensitized Solar Cells. Arrechea, S.; Clifford, J. N.; Pelleja, L.; Aljarilla, A.; de la Cruz, P.; Palomares, E.; Langa, F. Dyes Pigm. 2016, 126, 147. https://doi.org/10.1016/j.dyepig.2015.11.002
7. Effect of porphyrin loading on Dye Sensitized Solar Cell performance based on iodide/tri-iodide and cobalt electrolytes. Aljarilla, A.; Clifford, J. N.; Pelleja, L.; Moncho, A.; Arrechea, S.; de la Cruz, P.; Langa, F.; Palomares, E. J. Mater. Chem. A. 2013, 1, 13640. https://doi.org/10.1039/C3TA12955A
8. New Acceptor-π-Porphyrin-π-Acceptor Systems for Solution-Processed Small Molecule Organic Solar Cells. Arrechea, S.; Molina-Ontoria, A.; Aljarilla, A.; de la Cruz, P.; Langa, F.; Echegoyen, L. Dyes Pigm. 2015, 121, 109. https://doi.org/10.1016/j.dyepig.2015.04.037
9. Push-Pull cromophores based on triphenylamine as photosensitizers and electron donors for molecular solar cells. Aljarilla, A.; Herrero-Ponce, P.; Atienzar, P.; Arrechea, S.; de la Cruz, P.; L.; Langa, F.; García, H. Tetrahedron. 2013, 69, 6875. https://doi.org/10.1016/j.tet.2013.05.137

Sustainability for providing electricity through microgrids in rural communities

10. Methodology for Monitoring Sustainable Development of Isolated Microgrids in Rural Communities. Rahmann, C.; Núñez, O.; Valencia, F.; Arrechea, S.; Sager, J.; Kammen, D. Sustainability 2016, 8, 1163. https://doi.org/10.3390/su8111163