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Electrical Engineering and Power Electronics  
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## Public CV Joris de Hoog

### Employment

**postdoctoral researcher**  
Electrical Engineering and Power Electronics  
Vrije Universiteit Brussel  
Brussels, Belgium  
1 Dec 2023 → 30 Nov 2024

### Application Engineer

Flanders Make  
Lommel, Belgium  
1 Mar 2021 → 1 Dec 2023

### Project Manager

Engie, France  
France  
1 Aug 2019 → 1 Mar 2021

### Research outputs

**Battery aging assessment and parametric study of lithium-ion batteries by means of a fractional differential model**  
De Sutter, L., Firouz, Y., De Hoog, J., Omar, N. & Van Mierlo, J., 10 May 2019, In: *Electrochimica Acta*. 305, p. 24-36 13 p.

**Electrochemical impedance study of commercial  $\text{LiNi}_{0.80}\text{Co}_{0.15}\text{Al}_{0.05}\text{O}_2$  electrodes as a function of state of charge and aging**  
Zhu, X., Fernández Macía, L., Jaguemont, J., de Hoog, J., Nikolian, A., Omar, N. & Hubin, A., 10 Oct 2018, In: *Electrochimica Acta*. 287, p. 10-20 11 p.

**A Combined Thermo-Electric Resistance Degradation model for Nickel Manganese Cobalt Oxide based Lithium-Ion cells**  
De Hoog, J., Jaguemont, J., Nikolian, A., Van Mierlo, J., Van Den Bossche, P. & Omar, N., 5 May 2018, In: *Applied Thermal Engineering*. 135, p. 54-65 12 p.

**Combining an Electrothermal and Impedance Aging Model to Investigate Thermal Degradation Caused by Fast Charging**  
De Hoog, J., Jaguemont, J., Abdel Monem, M., Van Den Bossche, P., Van Mierlo, J. & Omar, N., 30 Mar 2018, In: *Energies*. 11, 4, 15 p., 804.

**Development of a lifetime model for lithium-ion batteries**  
de Hoog, J., 2018, Brussels: ASP / VUBPRESS.

**Key Impact Factors on Cycling Capacity Evolution of Commercial LTO Based Pouch Cells**  
Hosen, M. S., De Hoog, J., Jaguemont, J., Van Mierlo, J., Omar, N. & Van Den Bossche, P., 2018, *EVS 31 & EVTeC 2018*. EVS31, p. 1-6 6 p. 20189365

**Complete cell-level lithium-ion electrical ECM model for different chemistries (NMC, LFP, LTO) and temperatures (-5°C to 45°C) – Optimized modelling techniques**

Nikolian, A., Jaguemont, J., De Hoog, J., Goutam, S., Omar, N., Van Den Bossche, P. & Van Mierlo, J., 14 Dec 2017, In: International Journal of Electrical Power & Energy Systems. 98, June 2018, p. 133-146 14 p.

**Combined cycling and calendar capacity fade modeling of a Nickel-Manganese-Cobalt Oxide Cell with real-life profile validation**

Hoog, J. D., Timmermans, J-M., Ioan-Stroe, D., Swierczynski, M., Jaguemont, J., Goutam, S., Omar, N., Mierlo, J. V. & Bossche, P. V. D., 3 May 2017, In: Applied Energy. 200, p. 47 - 61 15 p.

**Batteries 2020 – Lithium-ion battery first and second life ageing, validated battery models, lifetime modelling and ageing assessment of thermal parameters**

Timmermans, J-M. P., Nikolian, A., De Hoog, J., Gopalakrishnan, R., Goutam, S., Omar, N., Coosemans, T. C. & Van Mierlo, J., 5 Sep 2016, *EPE 2016 Conference Proceedings*. IEEE, 23 p.

**Lithium Ion Batteries - Development of Advanced Electrical Equivalent Circuit Models for Nickel Manganese Cobalt Lithium-Ion**

Nikolian, A., Firouz, Y., Gopalakrishnan, R., Timmermans, J-M., Omar, N., Van Den Bossche, P. & De Hoog, J., 11 May 2016, In: Energies. Energy Storage Systems for Plug-in Electric Vehicles and Vehicle to Power Grid Integration, p. 1-25 25 p., energies-121112.

**Electric and Hybrid Vehicle Traction: Handbook**

Van Mierlo, J., Nazeraj, E., Hooftman, N. S., De Cauwer, C., De Hoog, J. & Turcksin, T., 1 May 2016, Vrije Universiteit Brussel, MOBI. 143 p.

**Veroudering en levenscyclus van lithium-ijzerfosfaatbatterijen**

Omar, N., De Hoog, J., Timmermans, J-M., Coosemans, T. C., Van Mierlo, J. & Van Den Bossche, P., 1 Apr 2015, In: Tijdschrift Vervoerswetenschap. 51, 2, p. 132-159 27 p.

**Ageing Phenomena of Lithium Ion Batteries**

De Hoog, J., Fleurbaey, K., Nikolian, A., Omar, N., Timmermans, J-M., Van Den Bossche, P. & Van Mierlo, J., 2 Dec 2014, *European Electric Vehicle Congress*. 13 p.

**Classification of Electric modeling and Characterization methods of Lithium-ion Batteries for Vehicle Applications**

Nikolian, A., De Hoog, J., Fleurbaey, K., Timmermans, J-M., Omar, N., Van Den Bossche, P. & Van Mierlo, J., 20 Jul 2014, *European Electric Vehicle Congress*. European Electric Vehicle Congress, 15 p.

**Lithium ion Capacitor - Electrical and thermal characterization of Advanced Rechargeable Energy Storage Component**

Fleurbaey, K., Ronsmans, J., De Hoog, J., Nikolian, A., Timmermans, J-M., Omar, N., Van Den Bossche, P. & Van Mierlo, J., 2014, *European Electric Vehicle Congress*. 11 p.

## Projects

**EU438: BATTERIES2020: Towards Realistic European Competitive Automotive batteries.**

Van Mierlo, J., Coosemans, T., Van Den Bossche, P., Timmermans, J. P., Capron, O., Gopalakrishnan, R., Omar, N., Goutam, S., Nikolian, A. & de Hoog, J.  
1/09/13 → 31/08/16

**IWT639: Battery Modelling of Lithium Chemistries Based on an Eclectic Approach**

Omar, N., Timmermans, J. P., Van Mierlo, J., Van Mierlo, J., Van Mierlo, J., Hubin, A., Schoukens, J., Van Den Bossche, P., de Hoog, J., Nikolian, A., Fleurbaey, K., Goutam, S., Jaguemont, J. & Gopalakrishnan, R.  
1/01/14 → 31/12/17

**IWT639A: BATTLE: Battery Modelling of Lithium Chemistries Based on an Eclectic Approach**

Van Mierlo, J., Omar, N., Timmermans, J. P., Jaguemont, J., Nikolian, A., de Hoog, J., Van Den Bossche, P. & De Sutter, L.

1/01/14 → 31/12/17

**Student theses**

**DEVELOPMENT OF A LIFETIME MODEL FOR LITHIUM-ION BATTERIES**

Author: De Hoog, J., Van Mierlo, J., Van Den Bossche, P., Omar, N., Lataire, P., Vounckx, R., Guillaume, P., Gualous, H. & Kowal, J., 18 May 2018

Supervisor: Van Mierlo, J. (Promotor) & Van Den Bossche, P. (Promotor)

**Automatic Equalization using handclaps as Impulse for acoustic room measurements**

Author: De Hoog, J., Touhafi, A., Reinoso Carvalho, F., Steenhaut, K., Da Silva Gomez, B., Reinoso Carvalho, F. & Tiete, J., 9 Sep 2013

Supervisor: Touhafi, A. (Promotor), Reinoso Carvalho, F. (Jury), Steenhaut, K. (Jury), Da Silva Gomez, B. (Jury), Reinoso Carvalho, F. (Advisor) & Tiete, J. (Advisor)

previous employments