

## List of publications: Dr. Ioannis Spanos

### 2023

- Jiménez, A. M. B., Sichevych, O., **Spanos, I.**, Altendorf, S. G., Ormeci, A., Antonyshyn, I. (2023) Al–Pt compounds catalyzing the oxygen evolution reaction. *Dalton Transactions* <https://doi.org/10.1039/D2DT03234A>

### 2022

- Kang, S., Im, C., **Spanos, I.**, Ham, K., Lim, A., Jacob, T., Schlögl, R., Lee, J. (2022) Durable Nickel-Iron (Oxy) hydroxide Oxygen Evolution Electrocatalysts through Surface Functionalization with Tetraphenylporphyrin. *Angewandte Chemie International Edition* <https://doi.org/10.1002/anie.202214541>
- Haase, F. T., Rabe, A., Schmidt, F.P., Herzog, A., Jeon, S. H., Frandsen, W., Narangoda, P. V., **Spanos, I.**, Ortega, K. F., Timoshenko, J., Lunkenbein, T., Behrens, M., Bergmann, A., Schlögl, R., Cuenya B. R. (2022) Role of Nanoscale Inhomogeneities in Co<sub>2</sub>FeO<sub>4</sub> Catalysts during the Oxygen Evolution Reaction. *Journal of the American Chemical Society* <https://doi.org/10.1021/jacs.2c00850>
- Narangoda, P., **Spanos, I.**, Masa, J., Schlögl, R., Zeradjanin, A.R. (2022) Electrocatalysis Beyond 2020: How to Tune the Preexponential Frequency Factor. *ChemElectroChem* <https://doi.org/10.1002/celec.202101278>
- Papakonstantinou, G., **Spanos, I.**, Dam, A.P., Schlögl, R., Sundmacher, K. (2022) Electrochemical evaluation of the de-/re-activation of oxygen evolving Ir oxide. *Physical Chemistry Chemical Physics* <https://doi.org/10.1039/D2CP00828A>

### 2021

- Zeradjanin, A.R., **Spanos, I.**, Masa, J., Rohwerder, M., Schlögl, R. (2021). Perspective on experimental evaluation of adsorption energies at solid/liquid interfaces. *Journal of Solid State Electrochemistry* <https://doi.org/10.1007/s10008-020-04815-8>
- Zeradjanin, A.R., Masa, J., **Spanos, I.**, Schlögl, R. (2021). Activity and stability of oxides during oxygen evolution reaction-From mechanistic controversies toward relevant electrocatalytic descriptors. *Frontiers in Energy Research* <https://doi.org/10.3389/fenrg.2020.613092>
- Ding, Y., Zhang, L., Gu, Q., **Spanos, I.**, Pfänder, N., Wu, K.H., Schlögl, R. (2021) Tuning of Reciprocal Carbon-Electrode Properties for an Optimized Hydrogen Evolution. *ChemSusChem* <https://doi.org/10.1002/cssc.202100654>
- **Spanos, I.**, Masa, J., Zeradjanin, A., Schlögl, R. (2021). The effect of iron impurities on transition metal catalysts for the oxygen evolution reaction in alkaline environment: activity mediators or active sites? *Catalysis Letters* <https://doi.org/10.1007/s10562-020-03478-4>
- Zeradjanin, A.R., Narangoda, P., **Spanos, I.**, Masa, J., Schlögl, R. (2021). Expanding the frontiers of hydrogen evolution electrocatalysis—searching for the origins of electrocatalytic activity in the anomalies of the conventional model. *Electrochimica Acta* <https://doi.org/10.1016/j.electacta.2021.138583>
- AR Zeradjanin, P Narangoda, **I Spanos**, J Masa, R Schlögl, How to minimise destabilising effect of gas bubbles on water splitting electrocatalysts? *Current Opinion in Electrochemistry* <https://doi.org/10.1016/j.coelec.2021.100797>

### 2020

- Ruiz Esquiús, J., Algara-Siller, G., **Spanos, I.**, Freakley, S.J., Schlögl, R., Hutchings, G.J. (2020). Preparation of Solid Solution and Layered IrO<sub>x</sub>–Ni(OH)<sub>2</sub> Oxygen Evolution Catalysts: Toward Optimizing Iridium Efficiency for OER. *ACS Catalysis* <https://doi.org/10.1021/acscatal.0c03866>
- Zeradjanin, A.R., **Spanos, I.**, Masa, J., Rohwerder, M., Schlögl, R. (2020). Perspective on experimental evaluation of adsorption energies at solid/liquid interfaces. *Journal of Solid State Electrochemistry* <https://doi.org/10.1007/s10008-020-04815-8>
- Antonyshyn, I., Barrios Jiménez, A.M., Sichevych, O., Burkhardt, U., Veremchuk, I., Schmidt, M., Ormeci, A., **Spanos, I.**, Tarasov, A., Teschner, D., Algara-Siller, G., Schlögl, R., Grin, Y. (2020). Al<sub>2</sub>Pt for Oxygen Evolution in Water Splitting: a Strategy for Creating Multi-functionality in Electrocatalysis. *Angewandte Chemie International Edition* <https://doi.org/10.1002/anie.202005445>

- Ding, Y., Gu, Q., Klyushin, A., Huang, X., Choudhury, S.H., **Spanos, I.**, Song, F., Mom, R., Dungen, P., Mechler, A.K., Schlögl, R., Heumann, S. (2020). Dynamic carbon surface chemistry: revealing the role of carbon in electrolytic water oxidation. *Journal of Energy Chemistry* <https://doi.org/10.1016/j.jechem.2019.12.006>
- Ruiz Esquiús, J., Morgan, D.J., **Spanos, I.**, Hewes, D.G., Freakley, S.J., Hutchings, G.J. (2020). The effect of Base on the Facile Hydrothermal Preparation of Highly Active IrO<sub>x</sub> Oxygen Evolution Catalysts. *ACS Applied Energy Materials* <https://doi.org/10.1021/acsaem.9b01642>

## 2019

- **Spanos, I.**, Tesch, M.F., Yu, M., Tüysüz, H., Zhang, J., Feng, X., Müllen, K., Schlögl, R., Mechler, A.K. (2019). Facile protocol for alkaline electrolyte purification and its influence on a Ni-Co oxide catalyst for the oxygen evolution reaction. *ACS Catalysis* <https://doi.org/10.1021/acscatal.9b01940>

## 2018

- Rodenas, T., Beeg, S., **Spanos, I.**, Neugebauer, S., Girgsdies, F., Algara-Siller, G., Schleker, P.P.M., Jakes, P., Pfänder, N., Willinger, M., Greiner, M., Prieto, G., Schlögl, R., Heumann, S. (2018). 2D Metal Organic Framework-Graphitic Carbon Nanocomposites as Precursors for High-Performance O<sub>2</sub>-Evolution Electrocatalysts. *Advanced Energy Materials* <https://doi.org/10.1002/aenm.201802404>
- **Spanos, I.**, Neugebauer, S., Guterman, R., Yuan, J., Schlögl, R., Antonietti, M. (2018). Poly(ionic liquid) Binders as Ion conductors and Polymer Electrolyte Interface for Enhanced Electrochemical Performance of Water Splitting Electrodes. *Sustainable Energy & Fuels* <https://doi.org/10.1039/C8SE00110C>
- Dungen, P., Greiner, M., Böhm, K.H., **Spanos, I.**, Huang, X., Auer, A.A., Schlögl, R., Heumann, S. (2018). Atomically dispersed vanadium oxides on multiwalled carbon nanotubes via atomic layer deposition: A multiparameter optimization. *Journal of Vacuum Science & Technology* <https://doi.org/10.1116/1.5006783>

## 2017

- **Spanos, I.**, Auer, A.A., Neugebauer, S., Deng, X.H., Tüysüz, H., Schlögl, R. (2017). Standardized Benchmarking of Water Splitting Catalysts in a Combined Electrochemical FlowCell/Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES) Setup. *ACS Catalysis* <https://doi.org/10.1021/acscatal.7b00632>

## 2016

- Auer A.A., Cap S., Antonietti M., Cherevko S., Deng X., Papakonstantinou G., Sundmacher K., Brüller S., Antonyshyn I., Dimitratos N., Davis R.J., Böhm K.-H., Fechler N., Freakley S., Grin Y., Gunnoe B.T., Haj-Hariri H., Hutchings G., Liang H., Mayrhofer K.J.J., Müllen K., Neese F., Ranjan C., Sankar M., Schlögl R., Schüth F., **Spanos I.**, Stratmann M., Tüysüz H., Vidakovic-Koch T., Yi Y., Zangari G. (2016). MAXNET Energy -Focusing Research in Chemical Energy Conversion on the Electrolytic Oxygen Evolution. *Green* <http://doi.org/10.1515/green-2015-0021>

## 2015

- Speder, J., **Spanos, I.**, Zana, A., Kirkensgaard, J.J.K., Mortensen, K., Altmann L., Bäumer, M., Arenz, M. (2015). From single crystal model catalysts to systematic studies of supported nanoparticles. *Surface Science* <https://doi.org/10.1016/j.susc.2014.05.024>
- **Spanos, I.**, Dideriksen, K., Kirkensgaard, J.J.K., Jelavic, S., Arenz, M. (2015). Structural disordering of de-alloyed Pt bimetallic nanocatalysts: the effect on oxygen reduction reaction activity and stability. *Physical Chemistry Chemical Physics* <https://doi.org/10.1039/C4CP04264F>

## 2014

- Speder, J., Zana, A., **Spanos, I.**, Kirkensgaard, J.J.K., Mortensen, K., Hanzlik, M., Arenz, M. (2014). Comparative degradation study of carbon supported proton exchange membrane fuel cell electrocatalysts –The influence of the platinum to carbon ratio on the degradation rate. *Journal of Power Sources* <https://doi.org/10.1016/j.jpowsour.2014.03.039>

- **Spanos, I.**, Pelegrín Rellán, C., Altmann, L., Bäumer, M., Arenz, M. (2014). Pt<sub>x</sub>Co<sub>1-x</sub> alloy NPs prepared by colloidal tool-box synthesis: The effect of de-alloying on the oxygen reduction reaction activity. *International Journal of Hydrogen Energy* <https://doi.org/10.1016/j.ijhydene.2014.03.199>
- **Spanos, I.**, Kirkensgaard, J.J.K., Mortensen, K., Arenz, M. (2014). Investigating the activity enhancement on Pt<sub>x</sub>Co<sub>1-x</sub>alloys induced by a combined strain and ligand effect. *Journal of Power Sources* <https://doi.org/10.1016/j.jpowsour.2014.03.039>

### 2013

- Speder, J., Zana, A., **Spanos, I.**, Kirkensgaard, J.J.K., Mortensen, K., Arenz, M. (2013). On the influence of the Pt to carbon ratio on the degradation of high surface area carbon supported PEM fuel cell electrocatalysts. *Electrochemistry Communications* <https://doi.org/10.1016/j.elecom.2013.06.001>

### 2012

- Kwon, Y., Birdja, Y., **Spanos, I.**, Rodríguez, P., Koper, M.T.M. (2012). Highly Selective Electro-Oxidation of Glycerol to Dihydroxyacetone on Platinum in the Presence of Bismuth. *ACS Catalysis* <https://doi.org/10.1021/cs200599g>