

Richard Dinsdale  
Athro  
Cyfadran Cyfrifiadureg, Peirianeg a Gwyddoniaeth  
Canolfan Ymchwil Amgylchedd Cynaliadwy



## Diddordebau ymchwil

Professor Richard Dinsdale is the Royal Academy of Engineering Chair in Emerging Technologies (Project value of £2.7 million lasting from Jan 2020-2029). This fellowship frees up Professor Dinsdale from all non-research activities in pursuit of developing his research topic of "Bio-Electrochemical Process Engineering for Carbon Reduction and Resource Recovery: E-Hance". A biologist by training, my first degree was in Applied Biology (Biotechnology) and I worked as a microbiologist in a pharmaceutical company before I started my academic career in the area of environmental biotechnology. My PhD research was in the field of anaerobic digestion from the Dept. of Production and Manufacturing Engineering, at the then University of Glamorgan (now the University of South Wales). My research activities are directed at optimizing microbial cultures for the production of energy either in the form of methane, hydrogen or as electricity directly from bioelectrochemical systems as well as other chemical products such as bioplastics, single cell protein and lipids from low grade biomass resources. This includes either liquid or solids wastes as well as from CO<sub>2</sub>, H<sub>2</sub> and CO gases. I am also interested in the development of novel instrumentation and its implementation in control systems for bioprocess optimization. In recent years I have been concentrating on the development of bioelectrochemical systems (BES).

## Cymwysterau

Applied Biology (Biotechnology), BSc  
Dyddiad Dyfarnu: 1 Gorff 1991

5 Mai 2021 → 5 Mai 2026 Research Degrees Chairs and Examiners training, Research Degrees Chairs and Examiners training

18 Mai 2022 → 18 Mai 2025 Research Supervision on the Run, Research Supervision on the Run

21 Chwef 2023 → 20 Chwef 2025 (COSHH) Hazardous Substances, (COSHH) Hazardous Substances

17 Ion 2023 → 17 Ion 2025 (COSHH) Hazardous Substances, (COSHH) Hazardous Substances

25 Meh 2018 → 2 Gorff 2020 Data Protection Briefing: GDPR edition, Data Protection Briefing: GDPR edition

4 Maw 2020 → ... KESS Academic Training, KESS Academic Training

21 Mai 2018 → ... Inclusive Leadership Workshop, Inclusive Leadership Workshop

25 Chwef 2015 → ... Health And Safety Awareness For Managers, Health And Safety Awareness For Managers

## Cyflogaeth

Athro

Cyfadran Cyfrifiadureg, Peirianeg a Gwyddoniaeth  
1 Awst 2009 → present

### Canolfan Ymchwil Amgylchedd Cynaliadwy

Cyfadran Cyfrifiadureg, Peirianeg a Gwyddoniaeth  
1 Awst 2020 → present

## Allbwn ymchwil

**Evaluation of a comprehensive power management system with maximum power point tracking algorithm for multiple microbial fuel cell energy harvesting**

Fernandez Feito, R., Younas, T. & Dinsdale, R., 3 Tach 2023, (E-gyhoeddi cyn argraffu) Yn: Bioelectrochemistry. 155, 12 t., 108597.

### WATER QUALITY MONITORING METHOD AND DEVICE

Dinsdale, R., Guwy, A., Kaur, A., Fernandez Feito, R., Spurr, M. W. A., Head, I. & Yu, E., 2 Chwef 2023, Rhif y patent WO2023007183, 22 Gorff 2022, Dyddiad blaenoriaeth 30 Gorff 2021

### **Recovery of zinc from scrap steel using zinc–bromine battery technology**

Standing, R., Laycock, C., Lloyd, G., Dinsdale, R. & Guwy, A., 18 Ion 2023, Yn: Chemsuschem. 16, 5, 12 t., e202201671.

### **Microbial Processing of Gases (US)**

Esteves, S., Dinsdale, R., Patterson, T. & Savvas, S., 17 Mai 2022, Rhif IPC C12P 5/02, C12N 1/20, C12M 1/00, C12M 1/34, United States Patent and Trademark Office, Rhif y patent US11332762B2, 29 Meh 2017

### **Fermentative volatile fatty acid production and recovery from grass using a novel combination of solids separation, pervaporation, and electro dialysis technologies**

Jones, R. J., Massanet-Nicolau, J., Fernandez Feito, R., Dinsdale, R. & Guwy, A., 1 Rhag 2021, Yn: Bioresource Technology. 342, 00, 125926.

### **Challenges in Scale up of Electrochemical CO<sub>2</sub> Reduction to Formate Integrated with Product Extraction Using Electro dialysis**

Kaur, A., Kim, B., Dinsdale, R., Guwy, A., Yu, E. & Premier, G., 1 Medi 2021, Yn: Journal of Chemical Technology and Biotechnology. 96, 9, t. 2461-2471 11 t., 6812.

### **Increasing 2 -Bio- (H<sub>2</sub> and CH<sub>4</sub>) production from food waste by combining two-stage anaerobic digestion and electro dialysis for continuous volatile fatty acids removal**

Hassan, G. K., Jones, R. J., Massanet-Nicolau, J., Dinsdale, R., Abo-Aly, M. M., El-Gohary, F. A. & Guwy, A., 15 Meh 2021, Yn: Waste Management. 129, t. 20-25 6 t.

### **Recovery and enhanced yields of volatile fatty acids from a grass fermentation via in-situ solids separation and electro dialysis**

Jones, R. J., Massanet-Nicolau, J., Fernandez-Feito, R., Dinsdale, R. M. & Guwy, A. J., 10 Mai 2021, Yn: Journal of Cleaner Production. 296, 126430.

### **A techno-economic case for volatile fatty acid production for increased sustainability in the wastewater treatment industry**

Veluswamy, G., Shah, K., Ball, A. S., Guwy, A. J. & Dinsdale, R. M., Mai 2021, Yn: Environmental Science: Water Research and Technology. 7, 5, t. 927-941 15 t., d0ew00853b.

### **Continuous recovery and enhanced yields of volatile fatty acids from a continually-fed 100 L food waste bioreactor by filtration and electro dialysis**

Jones, R. J., Fernández-Feito, R., Massanet-Nicolau, J., Dinsdale, R. & Guwy, A., 1 Maw 2021, Yn: Waste Management. 122, t. 81-88 8 t.

### **Accurate Measurement of Internal Resistance in Microbial Fuel Cells by Improved Scanning Electrochemical Impedance Spectroscopy**

Kim, B., Chang, I. S., Dinsdale, R. M. & Guwy, A. J., 10 Ion 2021, Yn: Electrochimica Acta. 366, 137388.

### **Fate of antibiotic resistant E. coli and antibiotic resistance genes during full scale conventional and advanced anaerobic digestion of sewage sludge**

Redhead, S., Nieuwland, J., Esteves, S., Lee, D-H., Kim, D-W., Mathias, J., Cha, C-J., Toleman, M., Dinsdale, R., Guwy, A. & Hayhurst, E., 1 Rhag 2020, Yn: PLoS One. 15, 12, t. e0237283 17 t., e0237283.

### **Utilizing Grass for the Biological Production of Polyhydroxyalkanoates (PHAs) via Green Biorefining: Material and Energy Flows**

Patterson, T., Massanet-Nicolau, J., Jones, R. J., Boldrin, A., Valentino, F., Dinsdale, R. & Guwy, A., 3 Hyd 2020, Yn: Journal of Industrial Ecology. 25, 3, t. 802-815 14 t., JIEC13071.

### **Electrogenic Biofilm Development Determines Charge Accumulation and Resistance to pH Perturbation**

Dinsdale, R., Michie, I., Guwy, A. & Premier, G., 8 Gorff 2020, Yn: Energies. 13, 14, 19 t., 3521.

### **Overcoming nutrient loss during volatile fatty acid recovery from fermentation media by addition of electro dialysis to a polytetrafluoroethylene membrane stack**

Chalmers-Brown, R., Tuffou, R., Massanet Nicolau, J., Dinsdale, R. & Guwy, A., 1 Ebrill 2020, Yn: Bioresource Technology. 301, April 2020, 7 t., 122543.

**Analysis of organic and inorganic anions by a novel capillary electrophoresis-PEDOT based amperometric detection method**

Feito, R. F., Dinsdale, R. & Guwy, A., 13 Ion 2020, *2019 IEEE Sensors, SENSORS 2019 - Conference Proceedings*. Institute of Electrical and Electronics Engineers Inc., 8956908. (Proceedings of IEEE Sensors; Cyfrol 2019-October).

**Multi-region analysis of future GB energy system**

Reed, J., Carr, S., Maddy, J. & Dinsdale, R., 2020.

**Biohythane as an energy feedstock for solid oxide fuel cells**

Veluswamy, G., Laycock, C., Shah, K., Ball, A., Guwy, A. & Dinsdale, R., 1 Hyd 2019, Yn: *International Journal of Hydrogen Energy*. 44, 51, t. 27896-27906

**Magnetic Induction Spectroscopy (MIS) for Biomass Measurement: A Feasibility Study**

Zhang, Z., Roula, M. & Dinsdale, R., 20 Meh 2019, Yn: *Sensors*. 19, 12, 13 t., 2765.

**A novel method for increasing biohydrogen production from food waste using electro dialysis**

Hassan, G. K., Massanet-Nicolau, J., Dinsdale, R., Jones, R. J., Abo-Aly, M. M., El-Gohary, F. A. & Guwy, A., 7 Meh 2019, Yn: *International Journal of Hydrogen Energy*. 44, 29, t. 14715-14720 6 t.

**Bioelectrochemical treatment and recovery of copper from distillery waste effluents using power and voltage control strategies**

Dinsdale, R., Kaur, A., Boghani, H., Guwy, A., Premier, G., Michie, I., Milner, E. M., Kimber, R., Daalmans, R., Head, I., Lloyd, J., Yu, E. & Sadhukhan, J., 5 Meh 2019, Yn: *Journal of Hazardous Materials*. 371, t. 18-26

**A new sequential injection analysis-capillary electrophoresis system with amperometric detection**

Dinsdale, R., Guwy, A., Fernández Feito, R. & Premier, G., 1 Gorff 2018, Yn: *Electrophoresis*. 39, 14, t. 1754-1762

**Applicability of a PEDOT Coated Electrode for Amperometric Quantification of Short Chain Carboxylic Acids**

Feito, R. F., Dinsdale, R. M., Guwy, A. J. & Premier, G. C., Chwef 2018, Yn: *Sensors and Actuators, B: Chemical*. 255, t. 712-719

**Integration of Power to Methane in a Waste Water Treatment Plant: A Feasibility Study**

Patterson, T., Savvas, S., Chong, A., Law, I., Dinsdale, R. & Esteves, S., Rhag 2017, Yn: *Bioresource Technology*. 245, Part A, t. 1049-1057 048.

**Hydrogenotrophic Methanogenesis – Development of a High Rate, Zero Waste System based on Closed Nutrient Recycling**

Savvas, S., Donnelly, J., Patterson, T., Dinsdale, R. & Esteves, S. R., 18 Hyd 2017.

**Microbial Processing of Gasses (EP)**

Esteves, S. R., Patterson, T., Dinsdale, R. & Savvas, S., 31 Gorff 2017, Rhif IPC C12P5/02, C12N1/20, Rhif y patent 15831226.4, Dyddiad blaenoriaeth 30 Rhag 2014, Rhif Blaenoriaeth. PCT/GB2015/ 054176

**Method and apparatus for magnetic induction spectroscopy**

Esteves, S. R., Dinsdale, R., Patz, R., Watson, S. & Williams, G., 26 Gorff 2017, (Wedi'i dderbyn/Yn y wasg) Rhif y patent GB2500216, Dyddiad blaenoriaeth 13 Maw 2012

**Microbial Processing of Gasses (AUW)**

Esteves, S. R., Patterson, T., Dinsdale, R. & Savvas, S., 12 Gorff 2017, (Anfonwyd) Rhif IPC C12N1/20, C12P5/02, Rhif y patent AU2015373278, Dyddiad blaenoriaeth 30 Rhag 2014, Rhif Blaenoriaeth. PCT/GB2015/ 054176

**Sampled-time control of a microbial fuel cell stack**

Boghani, H., Dinsdale, R., Guwy, A. & Premier, G., 5 Gorff 2017, Yn: *Journal of Power Sources*. t. 338-347

**Increased biohydrogen yields, volatile fatty acid production and substrate utilisation rates via the electro dialysis of a continually fed sucrose fermenter**

Jones, R. J., Massanet-Nicolau, J., Mulder, M. J. J., Premier, G., Dinsdale, R. & Guwy, A., 30 Ebrill 2017, Yn: Bioresource Technology. 229, t. 46-52 7 t.

**Closed nutrient recycling via microbial catabolism in an eco-engineered self regenerating mixed anaerobic microbiome for hydrogenotrophic methanogenesis**

Savvas, S., Donnelly, J., Patterson, T., Dinsdale, R. & Esteves, S., 1 Maw 2017, Yn: Bioresource Technology. 227, t. 93-101

**Microbial Processing of Gases (US)**

Esteves, S. R., Patterson, T., Dinsdale, R. & Savvas, S., 11 Chwef 2017, Rhif IPC C12M1/00 , C12M1/107, C12M1/34, Rhif y patent US20170314045 , Dyddiad blaenoriaeth 30 Rhag 2014, Rhif Blaenoriaeth. PCT/GB2015/ 054176

**Reducing the burden of food processing washdown wastewaters using microbial fuel cells**

Boghani, H., Kim, J. R., Dinsdale, R. M., Guwy, A. J. & Premier, G. C., 15 Ion 2017, Yn: Biochemical Engineering Journal. 117, Part A, t. 210-217 8 t.

**Magnetic Induction Spectroscopy Measurements with Yeast Suspensions**

Zhang, Z., Roula, M., Watson, S., Patz, R., Dinsdale, R. & Ramaraju, S., 19 Awst 2016.

**Maximising biohydrogen yields via continuous electrochemical hydrogen removal and carbon dioxide scrubbing**

Massanet-Nicolau, J., Guwy, A., Dinsdale, R., Premier, G., Mulder, M. J. J. & Jones, R. J., 30 Meh 2016, Yn: Bioresource Technology. 218, October 2016, t. 512-7 6 t.

**Control of microbial fuel cell voltage using a gain scheduling control strategy**

Boghani, H., Michie, I., Dinsdale, R., Guwy, A. & Premier, G., 13 Mai 2016, Yn: Journal of Power Sources. 322, t. 106-115

**The impact of inocula carryover and inoculum dilution on the methane yields in batch methane potential tests**

Reilly, M., Dinsdale, R. & Guwy, A., 1 Mai 2016, Yn: Bioresource Technology. 208, t. 134-139 6 t.

**Enrichment strategy for enhanced bioelectrochemical hydrogen production and the prevention of methanogenesis**

Popov, A. L., Michie, I. S., Kim, J. R., Dinsdale, R. M., Guwy, A. J., Esteves, S. R. & Premier, G. C., 23 Chwef 2016, Yn: International Journal of Hydrogen Energy. 41, 7, t. 4120-4131 12 t.

**Critical analysis of methods for the measurement of volatile fatty acids**

Fernández, R., Dinsdale, R. M., Guwy, A. J. & Premier, G. C., 1 Chwef 2016, Yn: Critical Reviews in Environmental Science and Technology. 46, 3, t. 209-234 26 t.

**Instrumentation and control of anaerobic digestion processes: a review and some research challenges**

Jimenez, J., Latrille, E., Harmand, J., Robles, A., Ferrer, J., Gaida, D., Wolf, C., Mairet, F., Bernard, O., Alcaraz-Gonzalez, V., Mendez-Acosta, H., Zitomer, D., Totzke, D., Spanjers, H., Jacobi, F., Guwy, A., Dinsdale, R., Premier, G., Mazhegrane, S., Ruiz-Filippi, G., & 4 eraillSeco, A., Ribeiro, T., Paus, A. & Steyer, J. P., 1 Rhag 2015, Yn: Reviews in Environmental Science and Biotechnology. 14, 4, t. 615-648 34 t.

**Improved dynamic response and range in microbial fuel cell-based volatile fatty acid sensor by using poised potential**

Kaur, A., Dinsdale, R. M., Guwy, A. J. & Premier, G. C., 9 Medi 2015, *Selected Topics from the World Renewable Energy Congress WREC 2014*. Springer, Cyfrol 1. t. 183-192 10 t.

**Enhanced biomethane potential from wheat straw by low temperature alkaline calcium hydroxide pre-treatment**

Reilly, M., Dinsdale, R. & Guwy, A., 1 Awst 2015, Yn: Bioresource Technology. 189, t. 258-265 8 t.

**Removal and recovery of inhibitory volatile fatty acids from mixed acid fermentations by conventional electrodialysis**  
Jones, R. J., Massanet-Nicolau, J., Guwy, A., Premier, G. C., Dinsdale, R. M. & Reilly, M., 1 Awst 2015, Yn: Bioresource Technology. 189, t. 279-284 6 t.

**Utilising biohydrogen to increase methane production, energy yields and process efficiency via two stage anaerobic digestion of grass**  
Massanet-Nicolau, J., Dinsdale, R., Guwy, A. & Shipley, G., 1 Awst 2015, Yn: Bioresource Technology. 189, t. 379-383 5 t.

**Concentration of volatile fatty acids and removal of nutrients from anaerobic hydrolysates of thermally pretreated waste activated sludges for polyhydroxyalkanoates production**  
Tao, B., Passanha, P., Kumi, P., Dinsdale, R., Guwy, A., Wilson, V., Jones, D. & Esteves, S. R., 2015.

**Lignocellulosic Hydrolysate For Polyhydroxyalkanoates Biosynthesis: Impact On PHA Harvesting Time**  
Kumi, P., Passanha, P., Dinsdale, R., Reed, J., Guwy, A. & Esteves, S., 2015.

**Operational Conditions For Maximising The Carboxylic Acid Production Platform From Food Waste**  
Jobling-Purser, B., Dinsdale, R., Esteves, S. & Guwy, A., 2015.

**Controlling for peak power extraction from microbial fuel cells can increase stack voltage and avoid cell reversal**  
Boghani, H. C., Papaharalabos, G., Michie, I., Fradler, K. R., Dinsdale, R. M., Guwy, A. J., Ieropoulos, I., Greenman, J. & Premier, G. C., 10 Rhag 2014, Yn: Journal of Power Sources. 269, t. 363-369 7 t.

**Inhibition of methane production in microbial fuel cells: Operating strategies which select electrogens over methanogens**  
Kaur, A., Boghani, H. C., Michie, I., Dinsdale, R. M., Guwy, A. J. & Premier, G. C., 1 Rhag 2014, Yn: Bioresource Technology. 173, t. 75-81 7 t.

**Evaluation of feeding regimes to enhance PHA production using acetic and butyric acids by a pure culture of *Cupriavidus necator***  
Kedia, G., Passanha, P., Dinsdale, R. M., Guwy, A. J. & Esteves, S. R., Tach 2014, Yn: Biotechnology and Bioprocess Engineering. 19, 6, t. 989-995 7 t.

**Mesophilic biohydrogen production from calcium hydroxide treated wheat straw**  
Reilly, M., Dinsdale, R. & Guwy, A., 13 Hyd 2014, Yn: International Journal of Hydrogen Energy. 39, 30, t. 16891-16901 11 t.

**Anode modification to improve the performance of a microbial fuel cell volatile fatty acid biosensor**  
Kaur, A., Ibrahim, S., Pickett, C. J., Michie, I. S., Dinsdale, R. M., Guwy, A. J. & Premier, G. C., 1 Hyd 2014, Yn: Sensors and Actuators, B: Chemical. 201, t. 266-273 8 t.

**An improved titration model reducing over estimation of total volatile fatty acids in anaerobic digestion of energy crop, animal slurry and food waste**  
Purser, B. J. J., Thai, S. -M., Fritz, T., Esteves, S., Dinsdale, R. M. & Guwy, A., 15 Medi 2014, Yn: Water Research. 61, t. 162-170 9 t.

**NaCl addition for increased polyhydroxyalkanoate production by *Cupriavidus necator***  
Passanha, P., Kedia, G., Dinsdale, R., Guwy, A. & Esteves, S., 1 Gorff 2014, Yn: Molecular Biotechnology. 31, Supplement, t. S142-S143

**The use of NaCl addition for the improvement of polyhydroxyalkanoate production by *Cupriavidus necator***  
Passanha, P., Kedia, G., Dinsdale, R. M., Guwy, A. J. & Esteves, S. R., 1 Gorff 2014, Yn: Bioresource Technology. 163, t. 287-294

**Hydrogen storage and demand to increase wind power onto electricity distribution networks**  
Carr, S., Premier, G. C., Guwy, A. J., Dinsdale, R. M. & Maddy, J., 24 Meh 2014, Yn: International Journal of Hydrogen Energy. 39, 19, t. 10195-10207 13 t.

**Augmenting microbial fuel cell power by coupling with supported liquid membrane permeation for zinc recovery**

Fradler, K. R., Michie, I., Dinsdale, R. M., Guwy, A. J. & Premier, G. C., 15 Mai 2014, Yn: Water Research. 55, t. 115-125 11 t.

**Operation of a bioelectrochemical system as a polishing stage for the effluent from a two-stage biohydrogen and biomethane production process**

Fradler, K. R., Kim, J. R., Shipley, G., Massanet-Nicolau, J., Dinsdale, R. M., Guwy, A. J. & Premier, G. C., 15 Ebrill 2014, Yn: Biochemical Engineering Journal. 85, t. 125-131 7 t.

**The influence of anodic helical design on fluid flow and bioelectrochemical performance**

Michie, I. S., Kim, J. R., Dinsdale, R. M., Guwy, A. J. & Premier, G. C., 25 Maw 2014, Yn: Bioresource Technology. 165, CESE 2013, t. 13-20 8 t.

**The effect of internal capacitance on power quality and energy efficiency in a tubular microbial fuel cell**

Fradler, K. R., Kim, J. R., Boghani, H. C., Dinsdale, R. M., Guwy, A. J. & Premier, G. C., 12 Maw 2014, Yn: Process Biochemistry. 49, 6, t. 973-980 8 t.

**Energy storage for active network management on electricity distribution networks with wind power**

Carr, S., Premier, G. C., Guwy, A. J., Dinsdale, R. M. & Maddy, J., 2014, Yn: IET Renewable Power Generation. 8, 3, t. 249-259 11 t.

**NaCl addition for increased polyhydroxyalkanoate production by *Cupriavidus necator***

Passanha, P., Kedia, G., Dinsdale, R., Guwy, A. & Esteves, S., 2014, t. S142-S143.

**Optimisation strategies for Polyhydroxyalkanoate production using *Cupriavidus necator***

Passanha, P., Kedia, G., Dinsdale, R., Guwy, A. & Esteves, S., 2014.

**Monitoring and Optimisation of Polyhydroxyalkanoate production through the use of volatile fatty acids and digestates**

Passanha, P., Esteves, S. R., Kedia, G., Dinsdale, R. & Guwy, A., Rhag 2013.

**Increasing polyhydroxyalkanoate (PHA) yields from *Cupriavidus necator* by using filtered digestate liquors**

Passanha, P., Esteves, S. R., Kedia, G., Dinsdale, R. M. & Guwy, A. J., Tach 2013, Yn: Bioresource Technology. 147, t. 345-352 8 t.

**Analysis of the dynamic performance of a microbial fuel cell using a system identification approach**

Premier, G., Kim, J. R., Guwy, A., Dinsdale, R. & Boghani, H. C., 15 Medi 2013, Yn: Journal of Power Sources. 238, t. 218 - 226 8 t.

**Microbial fuel cell type biosensor for specific volatile fatty acids using acclimated bacterial communities**

Michie, I., Premier, G., Kim, J. R., Guwy, A., Dinsdale, R. & Kaur, A., 15 Medi 2013, Yn: Biosensors and Bioelectronics. 47, t. 50 - 55 5 t.

**Monitoring methanogenic population dynamics in a full-scale anaerobic digester to facilitate operational management**

Guwy, A., Esteves, S., Dinsdale, R., Williams, J. & Williams, H., 1 Gorff 2013, Yn: Bioresource Technology. 140, t. 234 - 242 8 t.

**Life Cycle Assessment of Biohydrogen and Biomethane Production and Utilisation as a Vehicle Fuel**

Patterson, T., Esteves, S. R., Dinsdale, R. & Guwy, A., Meh 2013.

**Control of power sourced from a microbial fuel cell reduces its start-up time and increases bioelectrochemical activity**

Boghani, H. C., Kim, J. R., Dinsdale, R. M., Guwy, A. J. & Premier, G. C., 29 Ebrill 2013, Yn: Bioresource Technology. 140, t. 277-285 9 t.

**Addressing the challenge of optimum polyhydroxyalkanoate harvesting: Monitoring real time process kinetics and biopolymer accumulation using dielectric spectroscopy**

Kedia, G., Guwy, A., Esteves, S., Dinsdale, R., Passanha, P. & Lee, M., 1 Ebrill 2013, Yn: Bioresource Technology. 134, t. 143 - 150 7 t.

**Integration of NIRS and PCA techniques for the process monitoring of a sewage sludge anaerobic digester**

Reed, J., Devlin, D., Guwy, A., Esteves, S. & Dinsdale, R., 1 Ebrill 2013, Yn: Bioresource Technology. 133, t. 398 - 404 6 t.

**Use of real time gas production data for more accurate comparison of continuous single-stage and two-stage fermentation**

Massanet-Nicolau, J., Dinsdale, R., Guwy, A. & Shipley, G., Chwef 2013, Yn: Bioresource Technology. 129, t. 561-567 7 t.

**Integration of biohydrogen, biomethane and bioelectrochemical systems**

Penumathsa, B. K. V., Massanet-Nicolau, J., Kyazze, G., Premier, G., Kim, J. R., Rodriguez-Rodriguez, J., Maddy, J., Guwy, A., Esteves, S. & Dinsdale, R., 31 Ion 2013, (E-gyhoeddi cyn argraffu) Yn: Renewable energy. 49, t. 188 - 192 4 t.

**Factors affecting microbial fuel cell acclimation and operation in temperate climates**

Michie, I. S., Kim, J. R., Dinsdale, R. M., Guwy, A. J. & Premier, G. C., 2013, Yn: Water Science and Technology. 67, 11, t. 2568-2575 8 t.

**Increasing the Release of Soluble Carbohydrates from a Recalcitrant Lignocellulosic Biomass for Biohydrogen Production**

Kumi, P., Williams, G., Dinsdale, R., Shipley, G., Reed, J. & Guwy, A., 2013.

**Operational control and optimisation of a full scale digester based on multi-parameter monitoring including microbial population profiles: Preliminary investigations**

Williams, J. B., Williams, H., Dinsdale, R., Guwy, A. & Esteves, S., 2013.

**The Value of Digestate Nutrients in Biopolymer Production**

Kedia, G., Passanha, P., Dinsdale, R., Guwy, A. & Esteves, S., 2013.

**Life cycle assessment of biohydrogen and biomethane production and utilisation as a vehicle fuel.**

Patterson, T., Maddy, J., Guwy, A., Esteves, S. & Dinsdale, R., 19 Rhag 2012, Yn: Bioresource Technology. 131, t. 235 - 245 10 t.

**Evaluation of Chemical and Thermal Pretreatments on Digestibility of WAS and Mixed Sewage Sludges**

Devlin, D. C., Esteves, S. R., Dinsdale, R. & Guwy, A., Tach 2012.

**Production of PHA from filtered digestates by C necator & optimisation of harvesting time**

Esteves, S. R., Passanha, P., Kedia, G., Dinsdale, R. & Guwy, A., 20 Medi 2012.

**Porous anodes with helical flow pathways in bioelectrical systems : The effects of fluid dynamics and operating regimes**

Michie, I., Boghani, H., Premier, G., Kim, J. R., Guwy, A., Dinsdale, R., Amini, N., Aguey-Zinsou, K-F. & Guo, Z. Z., 7 Ebrill 2012, Yn: Journal of Power Sources. 213, t. 382 - 390 8 t.

**Optimal hydrogen storage and demand on electricity distribution networks with excess wind power**

Carr, S., Premier, G. C., Dinsdale, R. M., Guwy, A. J. & Maddy, J., Ebrill 2012, Yn: Renewable Energy and Power Quality Journal. 1, 10, t. 627-632 6 t., 408.

**Hydrogen enriched biogas production from low grade biomass**

Dinsdale, R., Massanet-Nicolau, J., Shipley, G., Guwy, A. & Premier, G., 2012, *World Renewable Energy Forum, WREF 2012, Including World Renewable Energy Congress XII and Colorado Renewable Energy Society (CRES) Annual Conference*. Cyfrol 6. t. 4652-4663 12 t.

**Issues of scale in microbial fuel cells and bioelectrochemical systems**

Premier, G. C., Kim, J. R., Michie, I., Popov, A., Boghani, H., Fradler, K., Dinsdale, R. M. & Guwy, A. J., 2012, *World Renewable Energy Forum, WREF 2012, Including World Renewable Energy Congress XII and Colorado Renewable Energy Society (CRES) Annual Conference*. Cyfrol 6. t. 4918-4925 8 t.

**The Effect of Physico-chemically Immobilized Methylene Blue and Neutral Red on the Anode of Microbial Fuel Cell**

Popov, A. L., Premier, G., Kim, J. R., Guwy, A., Esteves, S. & Dinsdale, R., 18 Rhag 2011, Yn: *Biotechnology and Bioprocess Engineering*. 17, t. 361 - 370 9 t.

**Lifting the lid on process optimisation for anaerobic digestion**

Reed, J., Devlin, D., Esteves, S., Dinsdale, R. & Guwy, A., Tach 2011.

**Methodologies For Assessing Feedstocks and Digestate Batch Anaerobic Biodegradability**

Esteves, S. R., Devlin, D. C., Dinsdale, R. & Guwy, A., Tach 2011.

**Squeezing More Energy From Feedstocks: Enzyme Addition and Enzymatic Activity Monitoring**

Williams, H. G., Kumi, P., Devlin, D. C., Williams, J., Dinsdale, R., Esteves, S. R., Guwy, A. & Lawrenson, G., Tach 2011.

**Fermentative biohydrogen production systems integration**

Massanet-Nicolau, J., Premier, G., Kim, J. R., Guwy, A. & Dinsdale, R., 1 Medi 2011, Yn: *Bioresource Technology*. 102, 18, t. 8534 - 8542 8 t.

**Evaluation of the Policy and Economic Factors Affecting the Use of Biomethane as a Transport Fuel in the UK**

Esteves, S., Patterson, T., Dinsdale, R. & Guwy, A., Medi 2011.

**Performance of various methodologies for assessing batch anaerobic biodegradability**

Esteves, S., Devlin, D. C., Dinsdale, R. & Guwy, A., Medi 2011.

**Operational temperature regulates anodic biofilm growth and the development of electrogenic activity**

Michie, I., Premier, G., Kim, J. R., Guwy, A. & Dinsdale, R., 14 Awst 2011, Yn: *Applied Microbiology and Biotechnology*. 92, 2, t. 419 - 0 419 t.

**Life cycle assessment of biogas infrastructure options on a regional scale**

Patterson, T., Guwy, A., Esteves, S. & Dinsdale, R., 24 Ebrill 2011, Yn: *Bioresource Technology*. 102, 15, t. 7313 - 323 10 t.

**Production of hydrogen from sludge**

Massanet-Nicolau, J., Premier, G., Maddy, J., Guwy, A., Esteves, S. & Dinsdale, R., 15 Maw 2011, *Reduction, Modification and Valorisation of Sludge REMOVALS*. t. 53-62

**Spatio-temporal development of the bacterial community in a tubular longitudinal microbial fuel cell**

Premier, G., Kim, J. R., Guwy, A., Dinsdale, R., J.Beecroft, N., Varcoe, J. R., Slade, R. C. T., Thumser, A. & Avignone-Rossa, C., 12 Maw 2011, Yn: *Applied Microbiology and Biotechnology*. 90, 3, t. 1179 - 1191 12 t.

**An evaluation of the policy and techno-economic factors affecting the potential for biogas upgrading for transport fuel use in the UK**

Patterson, T., Guwy, A., Esteves, S. & Dinsdale, R., 1 Maw 2011, Yn: *Energy Policy*. 39, 3, t. 1806 - 1816 10 t.

**Automatic control of load increases power and efficiency in a microbial fuel cell**

Michie, I., Premier, G., Kim, J. R., Guwy, A. & Dinsdale, R., 15 Chwef 2011, Yn: *Journal of Power Sources*. 196, 4, t. 2013 - 2019 6 t.



**Performance parameter prediction for sewage sludge digesters using reflectance FT-NIR spectroscopy**

Reed, J., Devlin, D., Guwy, A., Esteves, S. & Dinsdale, R., 12 Chwef 2011, Yn: Water Research. 45, 8, t. 2463 - 2472 9 t.

**The influence of psychrophilic and mesophilic start-up temperature on microbial fuel cell system performance**

Michie, I., Premier, G., Kim, J. R., Guwy, A. & Dinsdale, R., 27 Ion 2011, Yn: Energy and Environmental Science. 4, 3, t. 1011 - 1019 8 t.

**The effect of acid pretreatment on the anaerobic digestion and dewatering of waste activated sludge**

Devlin, D., Guwy, A., Esteves, S. & Dinsdale, R., 21 Rhag 2010, Yn: Bioresource Technology. 102, t. 4076 - 4082 6 t.

**Increasing power recovery and organic removal efficiency using extended longitudinal tubular microbial fuel cell (MFC) reactors**

Hawkes, F., Premier, G., Kim, J. R., Rodriguez-Rodriguez, J., Guwy, A. & Dinsdale, R., 25 Hyd 2010, Yn: Energy and Environmental Science. 4, 2, t. 459 - 465 6 t.

**Influence of catholyte pH and temperature on hydrogen production from acetate using a two chamber concentric tubular microbial electrolysis cell**

Popov, A., Kyazze, G., Hawkes, F., Premier, G., Guwy, A., Esteves, S. & Dinsdale, R., 1 Awst 2010, Yn: International Journal of Hydrogen Energy. 35, 15, t. 7716 - 7722 6 t.

**Response to Randhir P. Deo and Rolf U. Halden's comments regarding "The removal of pharmaceuticals, personal care products, endocrine disruptors and illicit drugs during wastewater treatment and its impact on the quality of receiving waters" by Kasprzyk-Hordern et al.**

Kasprzyk-Hordern, B., Dinsdale, R. M. & Guwy, A. J., Ebrill 2010, Yn: Water Research. 44, 8, t. 2688-2690 3 t.

**Erratum to "The removal of pharmaceuticals, personal care products, endocrine disruptors and illicit drugs during wastewater treatment and its impact on the quality of receiving waters" [Water Research 43 (2009) 2] (DOI:10.1016/j.watres.2008.10.047)**

Kasprzyk-Hordern, B., Dinsdale, R. M. & Guwy, A. J., Maw 2010, Yn: Water Research. 44, 6, t. 2076 1 t.

**Production of hydrogen from sewage biosolids in a continuously fed bioreactor: Effect of hydraulic retention time and sparging**

Massanet-Nicolau, J., Premier, G., Guwy, A., Esteves, S. & Dinsdale, R., 2 Ion 2010, Yn: International Journal of Hydrogen Energy. 35, 2, t. 469 - 478 9 t.

**Investigating the Effect of Acid Pretreatment of Waste Activated Sludge on Subsequent Anaerobic Digestion**

Devlin, D. C., Esteves, S. R., Dinsdale, R. & Guwy, A., 2010.

**Modular tubular microbial fuel cells for energy recovery during sucrose wastewater treatment at low organic loading rate**

Kim, J. R., Premier, G., Hawkes, F., Rodriguez-Rodriguez, J., Dinsdale, R. & Guwy, A., 30 Medi 2009, Yn: Bioresource Technology. 101, 4, t. 1190 - 1198 8 t.

**Illicit drugs and pharmaceuticals in the environment - Forensic applications of environmental data. Part 1: Estimation of the usage of drugs in local communities**

Guwy, A., Dinsdale, R. & Kasprzyk-Hordern, B., 1 Meh 2009, Yn: Environmental Pollution. 157, t. 1773 - 1777 4 t.

**Illicit drugs and pharmaceuticals in the environment - Forensic applications of environmental data, Part 2 : Pharmaceuticals as chemical markers of faecal water contamination.**

Kasprzyk-Hordern, B., Guwy, A. & Dinsdale, R., 10 Chwef 2009, Yn: Environmental Pollution. 157, 6, t. 1778 - 1786 8 t.

**Erratum to "ADM1 can be applied to continuous bio-hydrogen production using a variable stoichiometry approach" [Water Res. 42 (2008) 16]**

Penumathsa, B. K. V., Premier, G. C., Kyazze, G., Dinsdale, R., Guwy, A. J., Esteves, S. & Rodriguez, J., Chwef 2009, Yn: Water Research. 43, 2, t. 562 1 t.

**An implementation framework for wastewater treatment models requiring a minimum programming expertise**

Premier, G., Rodriguez-Rodriguez, J., Guwy, A. & Dinsdale, R., 1 Ion 2009, (E-gyhoeddi cyn argraffu) Yn: *Water Science and Technology*. 59, 2, t. 367 - 380 13 t.

**Metabolic models to investigate energy limited anaerobic ecosystems**

Premier, G., Rodriguez-Rodriguez, J., Guwy, A., Dinsdale, R. & Kleerebezem, R., 1 Ion 2009, Yn: *Water Science and Technology*. 60, 7, t. 1669 - 1675 6 t.

**Development of a tubular microbial fuel cell (MFC) employing a membrane electrode assembly cathode**

Premier, G., Kim, J. R., Guwy, A., Dinsdale, R. & Hawkes, F. R., 17 Tach 2008, (E-gyhoeddi cyn argraffu) Yn: *Journal of Power Sources*. 187, 2, t. 393 - 399 6 t.

**Modelling studies of a two-stage continuous fermentative hydrogen and methane system with biomass as substrate**

Premier, G., Rodriguez-Rodriguez, J., Guwy, A., Dinsdale, R., Penumathsa, B. K. V. & Vargas, M., 10 Tach 2008, *13th European Biosolids and Organic Resources Conference and Workshop*.

**The removal of pharmaceuticals, personal care products, endocrine disruptors and illicit drugs during wastewater treatment and its impact on the quality of receiving waters**

Guwy, A., Dinsdale, R. & Kasprzyk-Hordern, B., 6 Tach 2008, Yn: *Water Research*. 43, t. 363 - 380 17 t.

**Hydrogen production from sewage sludge using mixed microflora inoculum: Effect of pH and enzymatic pretreatment**

Massanet-Nicolau, J., Guwy, A. & Dinsdale, R., 1 Hyd 2008, Yn: *Bioresource Technology*. 99, 14, t. 6325 - 6331 6 t.

**The effect of signal suppression and mobile phase composition on the simultaneous analysis of multiple classes of acidic/neutral pharmaceuticals and personal care products in surface water by solid-phase extraction and ultra performance liquid chromatography-negative electrospray tandem mass spectrometry**

Kasprzyk-Hordern, B., Guwy, A. & Dinsdale, R., 6 Medi 2008, Yn: *Talanta*. 74, 5, t. 1299 - 1312 13 t.

**Review of Energy Balances and Emissions Associated with Biomass-Based Transport Fuels Relevant to the United Kingdom Context**

Patterson, T., Esteves, S. & Dinsdale, R., 20 Awst 2008, (E-gyhoeddi cyn argraffu) Yn: *Energy and Fuels*. 22, 5, t. 3506 - 3512 6 t.

**ADM1 can be applied to continuous bio-hydrogen production using a variable stoichiometry approach**

Kyazze, G., Premier, G., Rodriguez-Rodriguez, J., Guwy, A., Esteves, S., Dinsdale, R. & Varma, B. V. K., 3 Awst 2008, Yn: *Water Research*. 42, 16, t. 4379 - 4385 6 t.

**The occurrence of pharmaceuticals, personal care products, endocrine disruptors and illicit drugs in surface water in South Wales, UK**

Guwy, A., Dinsdale, R. & Kasprzyk-Hordern, B., 1 Gorff 2008, Yn: *Water Research*. 42, 13, t. 3498 - 3518 20 t.

**An exploratory study of public opinions on the use of hydrogen energy in Wales**

Cherryman, S. J., Hawkes, F., Hawkes, D., Dinsdale, R. & King, S., 30 Mai 2008, Yn: *Public Understanding of Science*. 17, t. 397 - 410 13 t.

**Multiresidue methods for the analysis of pharmaceuticals, personal care products and illicit drugs in surface water and wastewater by solid-phase extraction and ultra performance liquid chromatography-electrospray tandem mass spectrometry**

Kasprzyk-Hordern, B., Dinsdale, R. & Guwy, A., 6 Maw 2008, Yn: *Analytical and Bioanalytical Chemistry*. 391, 4, t. 1293 - 1308 15 t.

**Direct fermentation of fodder maize, chicory fructans and perennial ryegrass to hydrogen using mixed microflora**

Kyazze, G., Hawkes, F., Premier, G., Guwy, A., Dinsdale, R. & Donnison, I. S., 1 Ion 2008, Yn: *Bioresource Technology*. 99, 18, t. 8833 - 8839 6 t.

**The Status of Biohydrogen Production in the UK: Laboratory Scale to Pilot Scale**

Guwy, A., Kyazze, G., Dinsdale, R., Premier, G., Massanet-Nicolau, J., Hawkes, F., Esteves, S. R., Vazquez Diaz, I. & Ahmed, A., 2008.

**Anaerobic Digestion of Biodegradable Municipal Waste - A European Perspective**

Esteves, S., Monson, K., Guwy, A. & Dinsdale, R., Tach 2007.

**Fermentative production of hydrogen from a wheat flour industry co-product**

Hawkes, F., Hawkes, D., Premier, G., Maddy, J., Guwy, A., Dinsdale, R., Forsey, H., Cherryman, S., Shine, J. & Auty, D., 26 Hyd 2007, Yn: Bioresource Technology. 99, 11, t. 5020 - 5029 9 t.

**Evaluation of the Oxitop®-C system for assessing sewage sludge digestibility**

Devlin, D. C., Esteves, S. R., Dinsdale, R. & Guwy, A., Medi 2007.

**The Anaerobic Fermentative Production of Hydrogen from Sewage Sludge**

Massanet-Nicolau, J., Guwy, A., Dinsdale, R., Premier, G. & Esteves, S. R., Medi 2007.

**Multi-residue method for the determination of basic/neutral pharmaceuticals and illicit drugs in surface water by solid-phase extraction and ultra performance liquid chromatography-positive electrospray ionisation tandem mass spectrometry**  
Guwy, A., Dinsdale, R. & Kasprzyk-Hordern, B., 17 Awst 2007, Yn: Journal of Chromatography. 1161, 1-2, t. 132 - 145 13 t.

**Performance Characteristics of a Two-Stage Dark Fermentative System Producing Hydrogen and Methane Continuously**

Kyazze, G., Hawkes, F., Hawkes, D., Premier, G., Guwy, A. & Dinsdale, R., 1 Gorff 2007, Yn: Biotechnology and Bioengineering. 97, 4, t. 759 - 770 11 t.

**Anaerobic Digestion of Biodegradable Municipal Waste**

Monson, K., Esteves, S., Guwy, A. & Dinsdale, R., Mai 2007, Treforest, Pontypridd: University of Glamorgan. 622 t.

**Continuous dark fermentative hydrogen production by mesophilic microflora: Principles and progress**

Kyazze, G., Hawkes, F., Hawkes, D., Dinsdale, R. & Hussy, I., 1 Chwef 2007, Yn: International Journal of Hydrogen Energy. 32, 2, t. 172 - 184 12 t.

**The Anaerobic Digestion of Textile Desizing Wastewater**

Dinsdale, R., Bryne, K. & Tucker, D., 30 Ion 2007, *Ecotextiles: The Way Forward for Sustainable Development in Textiles*. MirafTAB, M. & Horrocks, A. R. (gol.). Elsevier, t. 163-167 5 t.

**Measurement of hydrogen peroxide in an advanced oxidation process using an automated biosensor**

Hawkes, D., Guwy, A., Dinsdale, R. & Modrzejewska, B., 1 Ion 2007, Yn: Water Research. 41, 1, t. 260 - 268 8 t.

**The potential for hydrogen-enriched biogas production from crops: scenarios in the UK**

Cherryman, S. J., Kyazze, G., Hawkes, F., Hawkes, D., Premier, G., Dinsdale, R. & Martinez-Perez, N., 10 Hyd 2006, Yn: Biomass and Bioenergy. 31, t. 95 - 104 9 t.

**Bifurcation and stability analysis of an anaerobic digestion model**

Premier, G., Guwy, A., Dinsdale, R. & Shen, S., 25 Awst 2006, Yn: Nonlinear Dynamics. 48, 4, t. 391 - 408 17 t.

**Influence of substrate concentration on the stability and yield of continuous biohydrogen production**

Kyazze, G., Martinez-Perez, N., Dinsdale, R., Premier, G. C., Hawkes, F. R., Guwy, A. J. & Hawkes, D. L., 5 Ebrill 2006, Yn: Biotechnology and Bioengineering. 93, 5, t. 971-979 9 t.

**Development of a static headspace gas chromatographic procedure for the routine analysis of volatile fatty acids in wastewaters**

Cruwys, J. A., Dinsdale, R. M., Hawkes, F. R. & Hawkes, D. L., 1 Chwef 2002, Yn: Journal of Chromatography. 945, 1-2, t. 195-209 15 t.

**Enhancement of hydrogen production from glucose by nitrogen gas sparging**

Mizuno, O., Dinsdale, R., Hawkes, F. R., Hawkes, D. L. & Noike, T., Mai 2000, Yn: Bioresource Technology. 73, 1, t. 59-65 7 t.

**Two-stage anaerobic co-digestion of waste activated sludge and fruit/vegetable waste using inclined tubular digesters**

Dinsdale, R. M., Premier, G. C., Hawkes, F. R. & Hawkes, D. L., Ebrill 2000, Yn: Bioresource Technology. 72, 2, t. 159-168 10 t.

**A comparison of the ability of black box and neural network models of ARX structure to represent a fluidized bed anaerobic digestion process**

Premier, G. C., Dinsdale, R., Guwy, A. J., Hawkes, F. R., Hawkes, D. L. & Wilcox, S. J., Maw 1999, Yn: Water Research. 33, 4, t. 1027-1037 11 t.

**Composition and biodegradability of products of wet air oxidation of polyester**

Dinsdale, R. M., Almemark, M., Hawkes, F. R. & Hawkes, D. L., 1999, Yn: Environmental Science and Technology. 33, 22, t. 4092-4095 4 t.

**Prediction of Remedial Actions During the Biological Degradation of Textile Effluents by Neural Networks**

Esteves, S. R., Hawkes, D. L., Hawkes, F., Guwy, A., O'Neill, C., Dinsdale, R. & Wilcox, S., Rhag 1998.

**Mesophilic and thermophilic anaerobic digestion with thermophilic pre-acidification of instant-coffee-production wastewater**

Dinsdale, R. M., Hawkes, F. R. & Hawkes, D. L., Awst 1997, Yn: Water Research. 31, 8, t. 1931-1938 8 t.

**Comparison of mesophilic and thermophilic upflow anaerobic sludge blanket reactors treating instant coffee production wastewater**

Dinsdale, R. M., Hawkes, F. R. & Hawkes, D. L., Ion 1997, Yn: Water Research. 31, 1, t. 163-169 7 t.

**Simple black box models predicting potential control parameters during disturbances to a fluidised bed anaerobic reactor**

Premier, G. C., Dinsdale, R., Guwy, A. J., Hawkes, F. R., Hawkes, D. L. & Wilcox, S. J., 1997, Yn: Water Science and Technology. 36, 6-7, t. 229-237 9 t.