

## About the author



**Dr. Claudia Fernandez-Martin** is a Lecturer in Chemical Engineering, Member of the Materials and Chemical Engineering Research Group at the School of Engineering (University of Aberdeen, UoA), Champion of the Circular Economy Theme (Centre for Energy Transition), Deputy Champion in Carbon Capture Utilisation and Storage CCUS (UoA), Deputy Environmental & Biodiversity Theme (School of Engineering), and Academic Member of the UK Carbon Capture and Storage Research Centre (UKCCSRS).

She has over 13 years' experience in: a) experimental and numerical modelling of Carbon Capture processes, b) the development of low-cost and advanced materials for CO<sub>2</sub> capture at post-combustion conditions (capture from gas and coal-based power plants emissions at atmospheric pressure) and pre-combustion conditions (capture from shifted syngas at elevated pressure), c) transformation of wastes, including biomass/plastic-based wastes, into porous adsorbents for gas separation applications, such as CO<sub>2</sub> capture and biogas upgrading, d) transformative

technologies, including microwaves, to achieve more efficient carbon capture processes.

Dr Claudia Fernández-Martín has done exhaustive research on a wide range of different materials for carbon capture applications, such as organic polymers (thermoplastic and thermoset resins, hyper-crosslinked organic polymers, and low-density organic polymers), composite polymeric and hybrid membranes, impregnated silicon-based adsorbents, and catalysts supported in carbon-based materials.

Dr Fernández-Martín has extensive experience in microwave-assisted processes (namely microwave-assisted regeneration of sorbents for gas separation including carbon capture, pre-treatment of lignocellulosic and food wastes, and microwave-assisted synthesis). She has supervised 4 Post-Doctoral Research Associates and a thesis to completion, and currently leads a research group composed by 7 PhD students. Additionally, she is mentor of new academics and PhD students in the School of Engineering, has led and currently leads several academic and industrial projects as Principal Investigator, has published in high-impact scientific journals and presented her job in national and international conferences, seminars and workshops.

More information can be found in this link:

<https://www.abdn.ac.uk/engineering/people/profiles/cfmartin>

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## ***Report on the 15<sup>th</sup> Symposium of Japan Society of Electromagnetic Wave Energy Applications***

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The 15<sup>th</sup> Symposium of the Japan Society of Electromagnetic Wave Energy Applications (JEMEA) was held on-line from 13-15 October, 2021, with short courses and equipment display. The Symposium is sponsored by JEMEA. The Symposium of JEMEA is held annually from 2007, and this is the 15<sup>th</sup> time. Professor Kazutoshi Ikenaga chaired the executive committee of the 15<sup>th</sup> Symposium. Basically, the presentations were in Japanese but the International mini Symposium entitled “Microwave Technology for Green

Chemistry” on 14 October was conducted in English.

Prior to the symposium, short courses were held on the first day. The Theme of the short courses were: “-New Trends in Microwave Technology- ~AI/MI Technology & Fusion into Biotechnology~”. Basically, 4 courses were held, with 52 participants attending. The program of the short courses is uploaded on the website [1].

In the Symposium, the total number of the papers presented was 55. This includes 8 papers in special session, 2 papers in JEMEA Prize recipient

presentation, 36 papers in oral session, and 9 poster paper presentations. 95 participants attended the Symposium, and the program is uploaded on the website [2].

The presented papers in the Oral and Poster sessions have a wide range of content. We could categorize these as follows: 3 papers in the field of measurement and simulation, 6 papers in that of power devices and systems, 7 papers in material processing, 14 papers in microwave chemistry, 13 papers in microwave physics, and 2 papers in biological application. Therefore, almost 30 % of the presented papers were related to chemical reactions and another 30 % were related to microwave physics.

Zoom was used and two venues designated A and B were activated for technical sessions. The opening ceremony, international mini symposium, poster sessions, award ceremony, corporate PR and closing ceremony were held in venue A.

The 15<sup>th</sup> Symposium on JEMEA was very fruitful and successful and it will be followed by the 16<sup>th</sup> Symposium to be held from 12 to 14 October, 2022. The information will be uploaded at the dedicated website [3].

We are looking forward to your participation.

### Useful links

1. <https://www.jemea.org/wp-content/uploads/2022/03/Short-Course-2021-program-in-English.pdf>
2. <https://www.jemea.org/wp-content/uploads/2022/03/Sympo-2021-program-in-English.pdf>
3. <https://www.jemea.org/?lang=en>

### About the authors



**Kazutoshi Ikenaga** is Professor at the Department of Applied Chemistry, Graduate School of Engineering, Sojo University.

He completed a master's course in synthetic chemistry at the Graduate School of Engineering, Kyushu University in 1985. From April in

1985, he worked as an assistant at Kumamoto Institute of Technology (current predecessor), followed by lecturer, assistant professor, and associate professor roles.

He was awarded a doctorate in engineering from Kyushu University in 1991. He has been investigating on organometallic chemistry using silicon compounds until 2000, and has been investigating on microwave-induced depolymerization of plastics since 2001.



**Yoshio Nikawa** is Professor at the Department of Human Informatics, School of Science and Engineering, Kokushikan University. He received the B.E., M.E. and Ph.D. degrees in electrical engineering from Keio University, Japan, in 1981, 1983, and 1986, respectively. From 1986, he worked as a research associate at The

National Defense Academy followed by a lecturer and associate professor positions. In April 1999, he joined Kokushikan University, as a professor in the Department of Electrical and Electronics Engineering. In April 2007, he moved to the newly established Department of Health and Medical Engineering followed by Department of Human Informatics.

His research activities include microwave and millimeter-wave measurements and applications, microwave and millimeter-wave heating and processing for medical and industrial applications. In 2017 he was awarded the AMPERE Medal.