

# THE CHOICE BETWEEN THE RDE AND MEA: GAS DIFFUSION METHODS

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Using catalysts in proton exchange membrane (PEM) fuel cells (FC) and electrolysis cells (EC) reduces the required overpotential and energy lost in the reactions. A suitable electrochemical characterisation procedure is vital for designing better and more cost-effective catalysts. [1]

Currently, the two main methods for catalyst electrochemical characterisation are the rotating disk electrode (RDE) and membrane electrode assembly (MEA). [2] However, between these two methods could fit a method with RDE-like control and MEA-like realistic conditions.

One such alternative is the relatively new floating electrode (FE) technique. [3] By floating the gas diffusion electrode on an aqueous electrolyte, the gaseous reactant has direct access to the catalyst. The resulting higher mass transport allows characterisation over a broader range of potentials and current densities. [3]

FE and other gas-accessible characterisation methods can be powerful new tools for experimental electrochemists to characterise catalysts between the established RDE and MEA experiments to improve the workflow and better understand the materials. The only question that should remain is, “Which gas-accessible method is best for my research?”.

## References

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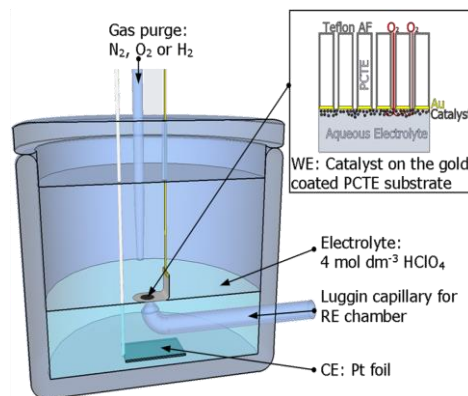


Fig.1 A schematic of a floating electrode system developed by Zalitis et al. [3].



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