# Article information:

Doped ceria with exsolved Fe0 nanoparticles as a Sr-free cathode for CO2 electrolysis in SOECs at reduced temperatures - Journal of Materials Chemistry A (RSC Publishing)
<https://pubs.rsc.org/en/content/articlelanding/2022/ta/d2ta00684g>

# Article summary:

1. Fe-exsolved ceria is an efficient SOEC cathode for CO2 electrolysis.

2. Dopant Fe is partially reduced under working conditions, forming dispersed Fe0 nanoparticles which enhances the catalytic activity for the CO2 reduction reaction.

3. At 700 °C, the cathode polarization resistance is 0.57 Ω cm2 and the chemical surface exchange coefficient for CO2 reduction is 1.68 × 10−3 cm s−1, showing better performance than metal-exsolved perovskite cathodes at 800 °C.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Doped ceria with exsolved Fe0 nanoparticles as a Sr-free cathode for CO2 electrolysis in SOECs at reduced temperatures” published in Journal of Materials Chemistry A (RSC Publishing) provides a detailed overview of how doped ceria with exsolved Fe0 nanoparticles can be used as a Sr-free cathode for CO2 electrolysis in SOECs at reduced temperatures. The article presents evidence that this method can be highly efficient and has better performance than metal-exsolved perovskite cathodes at 800°C.

The article appears to be reliable and trustworthy overall, as it provides evidence to support its claims and cites relevant sources throughout the text. The authors also provide clear affiliations and contact information, which adds to the trustworthiness of the article. Additionally, there are no promotional content or partiality present in the article, nor does it appear to present one side more than another or omit any counterarguments or points of consideration that should have been included.

However, there are some potential biases present in the article that should be noted. For example, while the authors do cite relevant sources throughout their text, they do not explore any counterarguments or alternative methods that could potentially be used instead of doped ceria with exsolved Fe0 nanoparticles as a Sr-free cathode for CO2 electrolysis in SOECs at reduced temperatures. Additionally, while possible risks associated with this method are mentioned briefly in passing, they are not explored in detail which could lead readers to overlook them entirely when considering whether or not this method is suitable for their own purposes.

In conclusion, while this article appears to be reliable and trustworthy overall due to its evidence-based approach and lack of promotional content or partiality, there are some potential biases present that should be noted such as its lack of exploration into counterarguments or alternative methods and its brief mention of possible risks without further exploration into them.

# Topics for further research:

* Alternative methods for CO2 electrolysis in SOECs
* Risks associated with doped ceria with exsolved Fe0 nanoparticles
* Advantages of metal-exsolved perovskite cathodes
* Pros and cons of Sr-free cathodes
* Efficiency of CO2 electrolysis at reduced temperatures
* Comparison of doped ceria with exsolved Fe0 nanoparticles and metal-exsolved perovskite cathodes

# Report location:

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