

Session Title:

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Position: Director/Professor

Abstract title: Lifecycle CO₂ emission analysis on electrochemical CO₂ to ethylene conversion system

Abstract text (within 100 words):

CO₂ conversion into useful chemicals is essential to reduce CO₂ concentration in the atmosphere, and the electrochemical process is a promising method for massive CO₂ utilization. In our project, we have evaluated the life cycle CO₂ emissions of a CO₂ to ethylene conversion system, which includes an electrochemical process, recycling processes for unreacted CO₂, and a product separation process. The results show that most CO₂ emissions come from the electrochemical reduction process, and that improving operating parameters such as faradaic efficiency and cell voltage are critical to achieve negative carbon emission.