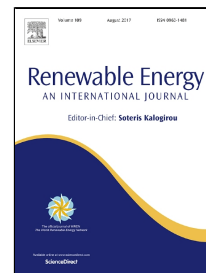


# Accepted Manuscript

Numerical Analyses of Three-Dimensional Fixed Reaction Bed for Thermochemical Energy Storage

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- Thermochemical energy storage based on  $\text{CaO}/\text{Ca}(\text{OH})_2$  reaction is investigated
- Three dimensional fixed porous reaction bed is considered with plate heat exchanger
- Heat storage and retrieval processes are simulated using finite element method
- Finite element method is used to solve coupled set of nonlinear equations
- Heat and mass transports in beds with low porosity are strongly three dimensional

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