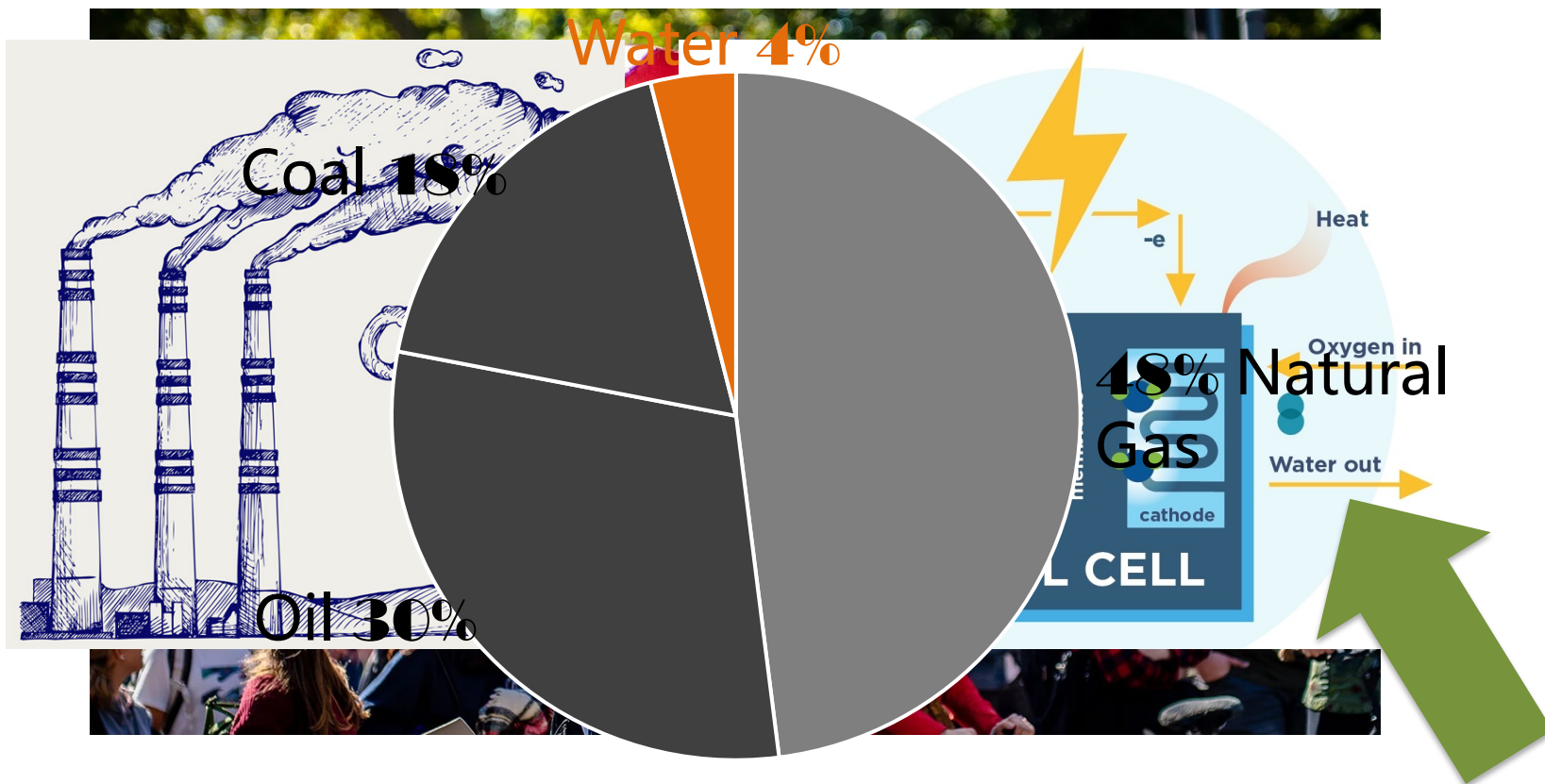


DEFECTED METAL OXIDES FOR GREEN HYDROGEN PRODUCTION

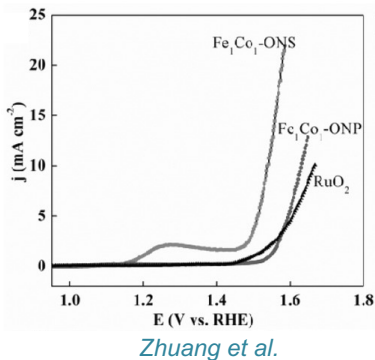
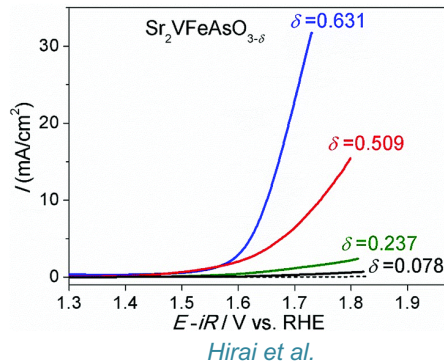
AKSHAT SINGH

GRA, The University of Texas at Austin
Joaquin Resasco & Delia Milliron Groups

MOTIVATION | GREEN HYDROGEN

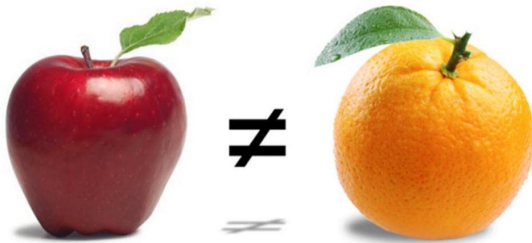


ROLE OF OXYGEN VACANCIES IN TRANSITION METAL OXIDE CATALYSTS



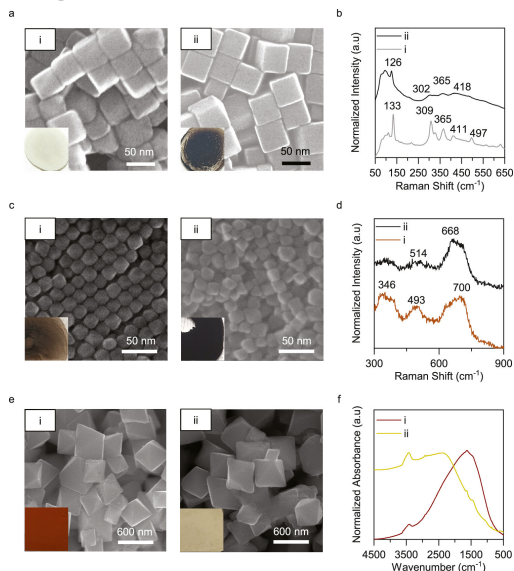
Challenges

- Hard to **control** vacancies
- Hard to **quantify** vacancies
- Vacancies are **unstable**
- **Structural changes** in material



WORK TILL NOW & PLAN FORWARD

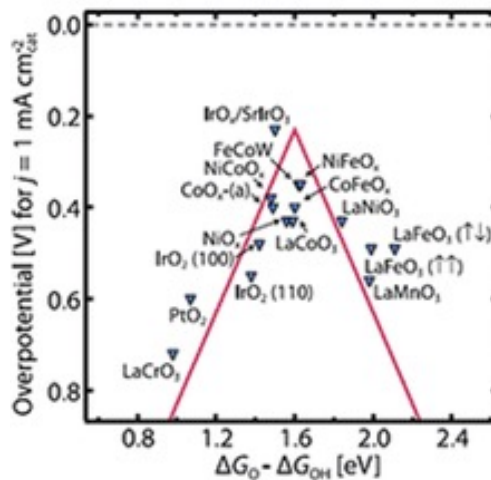
Controlling vacancies through spectator metal salts



Kim et al.

Cobalt iron oxide

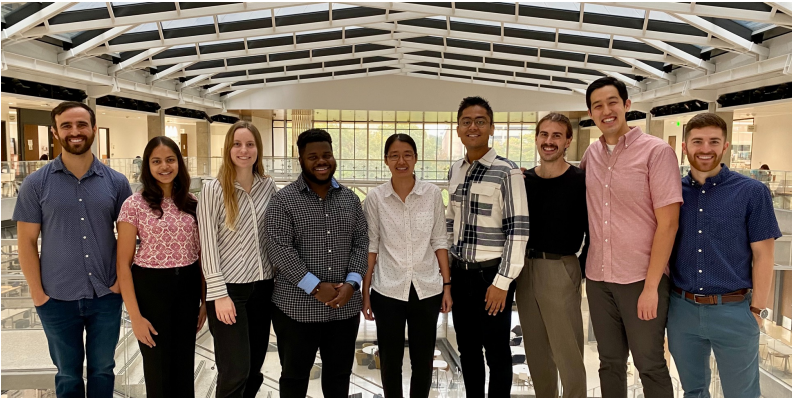
Independent parameters



Volcano OER : Sun et al.

1. Nanocrystal size
2. Cobalt to iron ratio
3. Oxygen vacancy concentration

ACKNOWLEDGEMENTS



The Resasco Group



The Milliron Group

THANK YOU