



# Hydrogen Storage Materials

## <Goal>

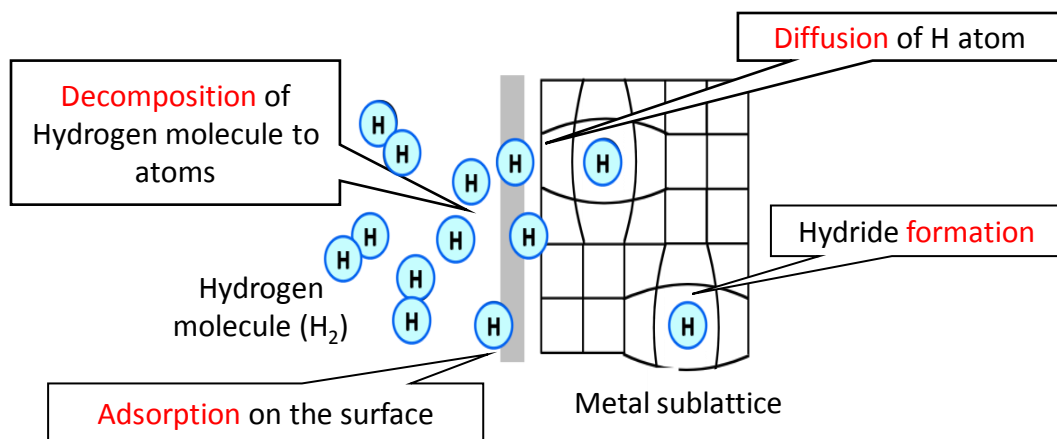
Design and development of **novel hydrogen storage materials** (system capacities larger than 6 % by weight)

## <Roadblock>

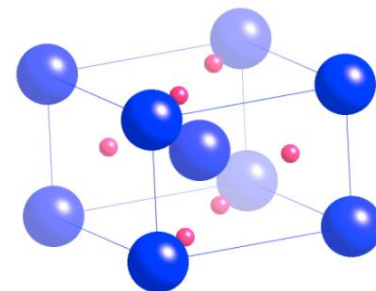
There is **no efficient method for hydrogen storage**, especially suitable for fuel cell vehicles

## <Approach>

- Devise **computational and experimental strategies**
  - Understand mechanism and strength of M-H **bonding**,
  - Understand hydrogen-surface **interactions** and **diffusion** of atoms
- etc.



Fuel Cell Vehicle: TOYOTA FCEV  
Ti-based hydrogen absorbing alloy that **Prof. Akiba** and Dr. Iba (TOYOTA) **developed** was used for on board hydrogen storage (October, 1996). The capacity of ~3 mass % is still the largest among materials working at room temperature.



**Mg hydride:**  
One of the candidate materials to be investigated in this Division  
Blue: Mg, Pink: Hydrogen