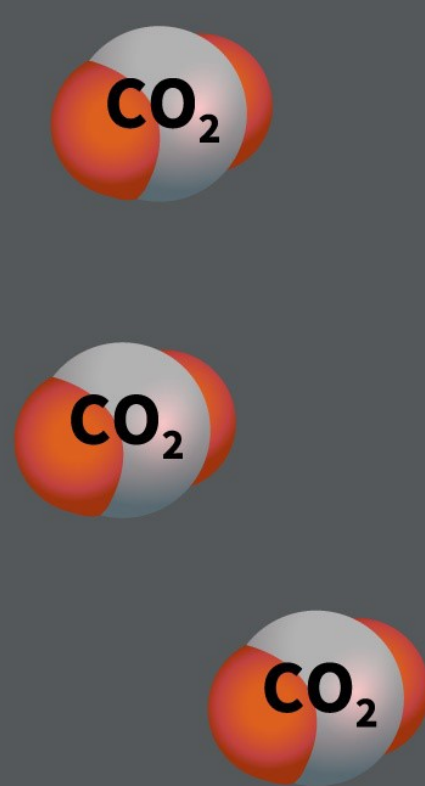
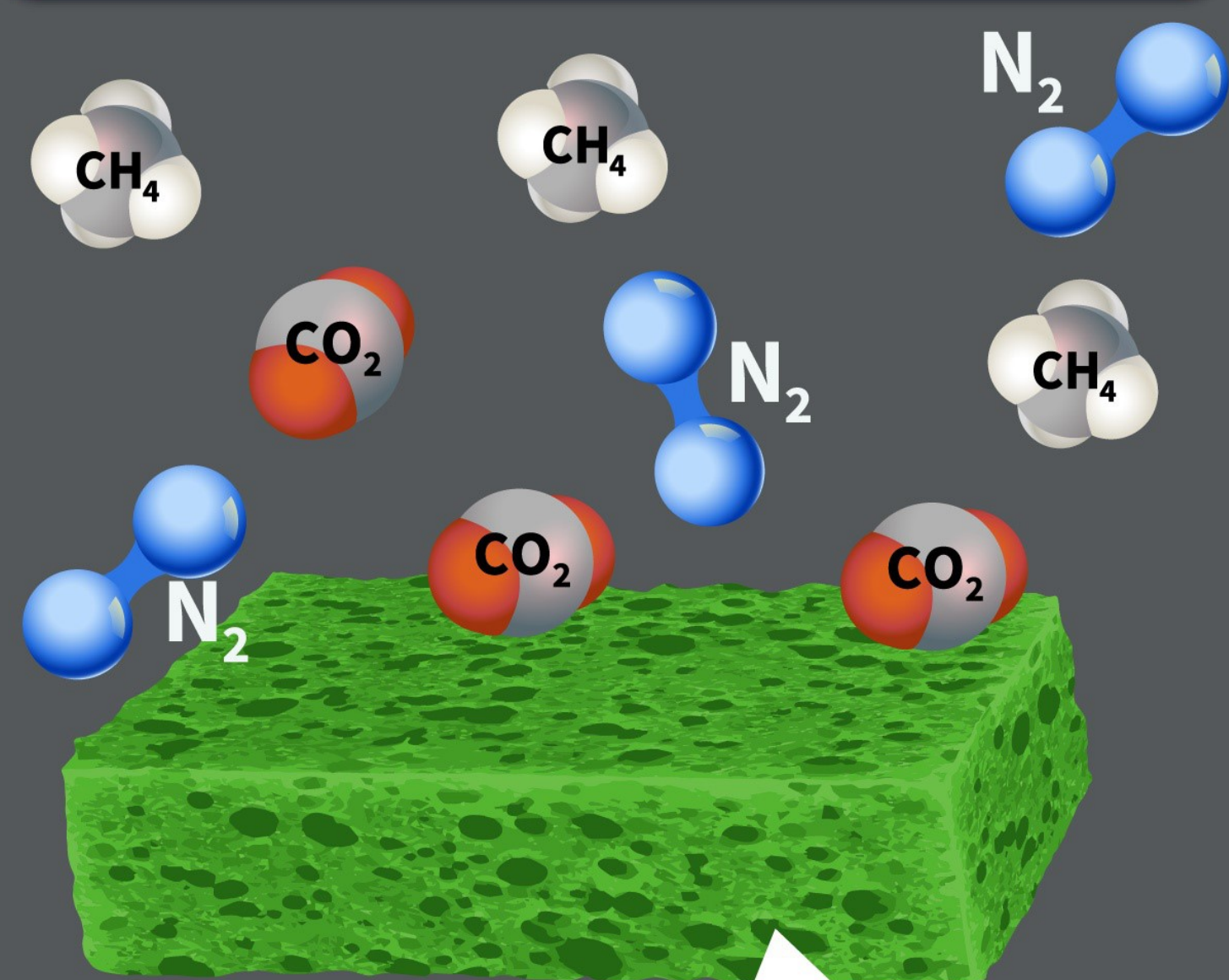


“Trapdoor” Effect of Silicoaluminophosphate Zeolite Aids in Highly Selective Carbon Dioxide Separation

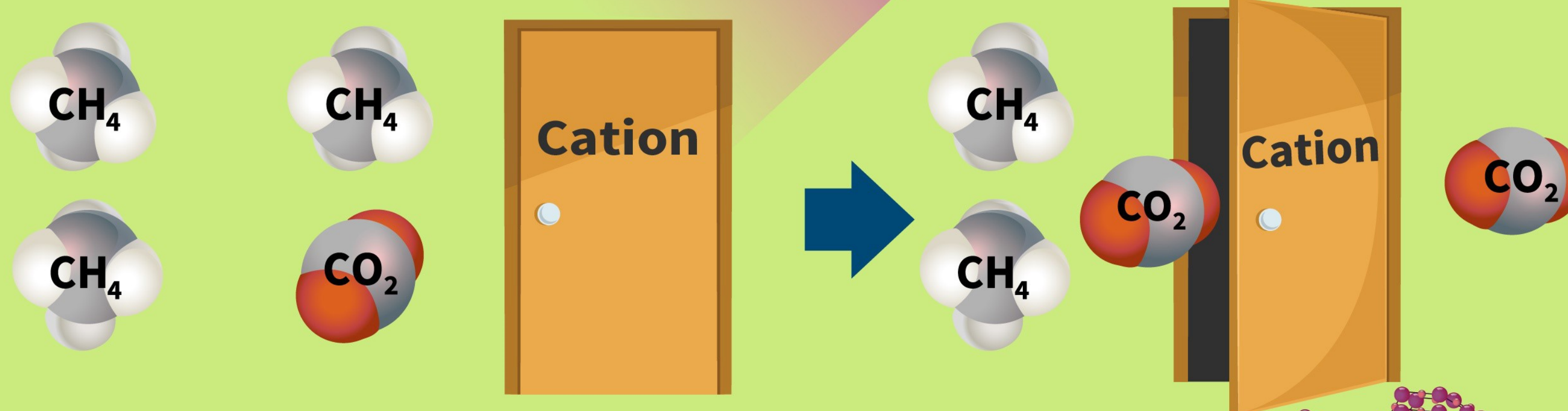
Solid nanoporous materials like silicoaluminophosphate (SAPO) zeolites exhibit excellent carbon dioxide (CO_2) capture and separation abilities



Introducing an inorganic cation into the SAPO zeolite structure may increase CO_2 selectivity but could result in the collapse of the framework

A novel SAPO zeolite with cation-induced *trapdoor effect* for separation of CO_2 from methane (CH_4) and nitrogen (N_2) is reported using a direct ion-exchange approach

Trapdoor effect



- Unprecedented CO_2/CH_4 separation factor
- Enhanced trapdoor effect
- High selectivity towards CO_2

Highly selective SAPO zeolites with their tailored inorganic cation **trapdoor effect** can be used for CO_2 capture from flue gas, refinery exhausts, and air

