

二氧化碳捕獲及再生化學品技術之開發(2/3)

執行單位

國立成功大學化工系

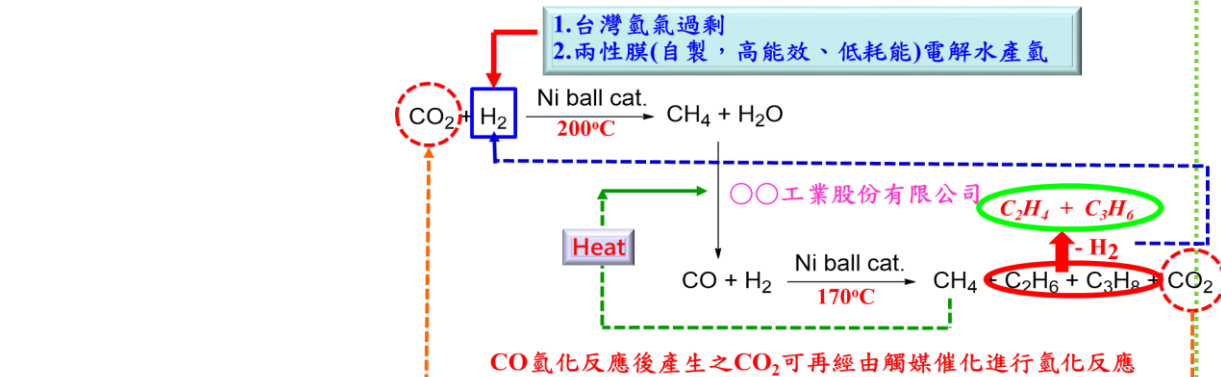
計畫主持人

陳志勇

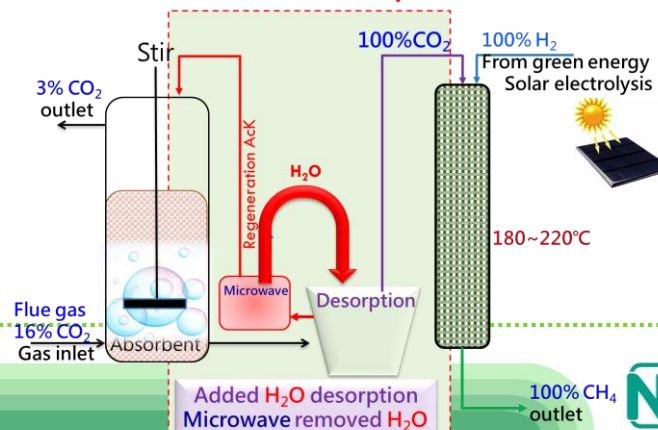
- 設計高吸收及高選擇性之CO₂分離系統，並兼顧低耗能之CO₂脫除效率，提供再製化學品之碳源。並製備能高效能活化CO₂氫化反應或轉化反應的觸媒，導入氫氣或其他氣體與CO₂反應製備化學品，以解決煙道氣中高排放量、高濃度CO₂、NO_x、SO_x，積極尋求大量CO₂出海口製程。

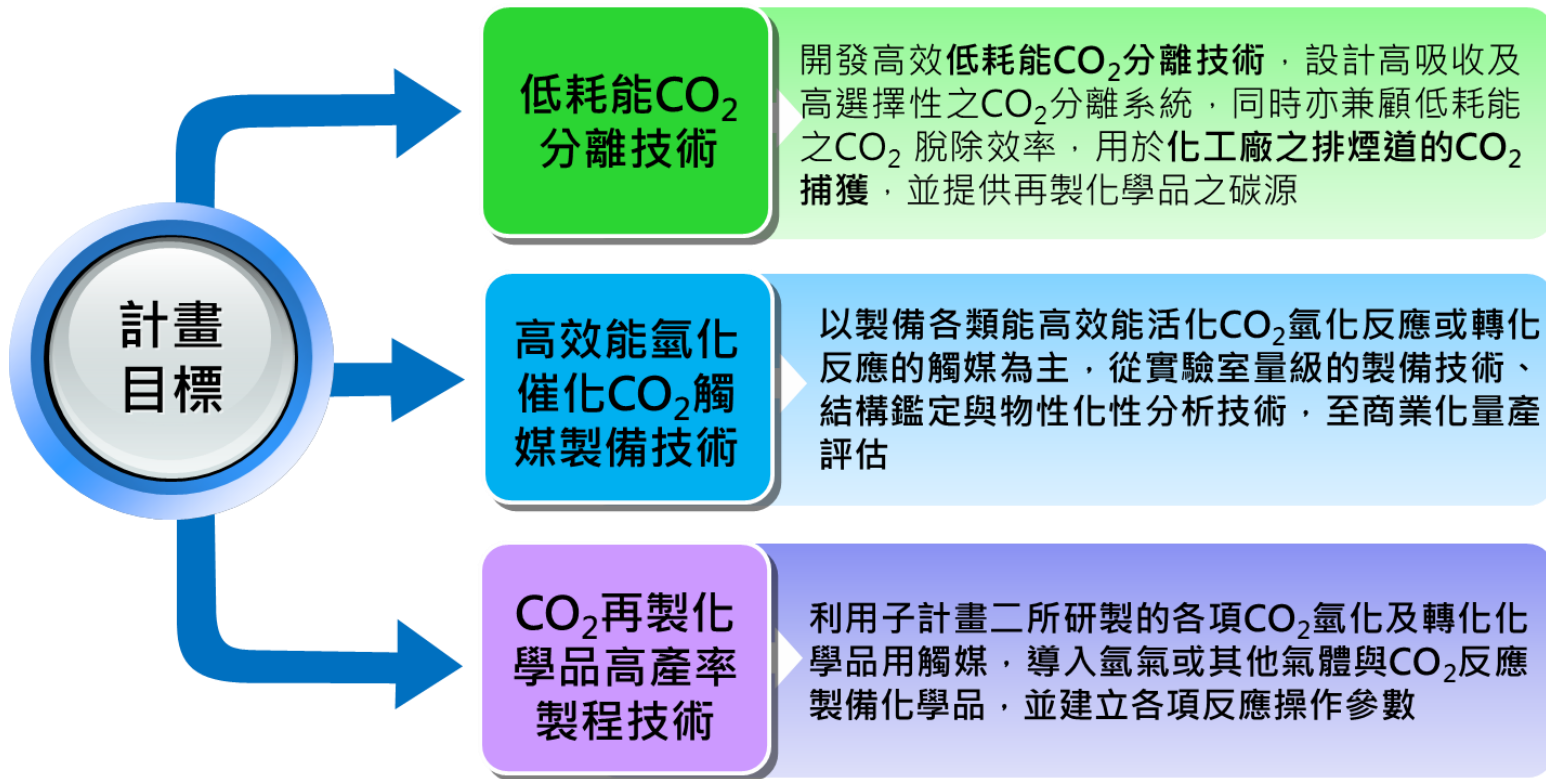
CO₂的碳循環體系規劃

- ◆ 【奈米鎳觸媒及碳氧化物的氫化方法】(國內申請號：106130511)
- ◆ 【Method of capturing carbon dioxide】(美國申請號：15/716738)
- ◆ 【NANO-NICKEL CATALYST AND HYDROGENATION DEVICE OF CARBON OXIDES】(美國申請號：15/828709)、(歐盟申請號：17205092.4)



醋酸鉀吸收劑加水解吸/微波除水系統





- 已完成CO₂吸收/解吸之再生系統串聯操作，開發非醇胺類吸收劑在50°C-90°C溫度下即可進行CO₂的解吸，解吸率>85%、再生率>95%。
- 開發Ni ball與磁性Ni/Carbon fiber觸媒可在常壓、160~225°C下催化CO₂完全轉化為CH₄與H₂O

Development of carbon dioxide capturing and utility for chemicals technology(2/3)

Execution Unit

Department of Chemical Engineering, NCKU

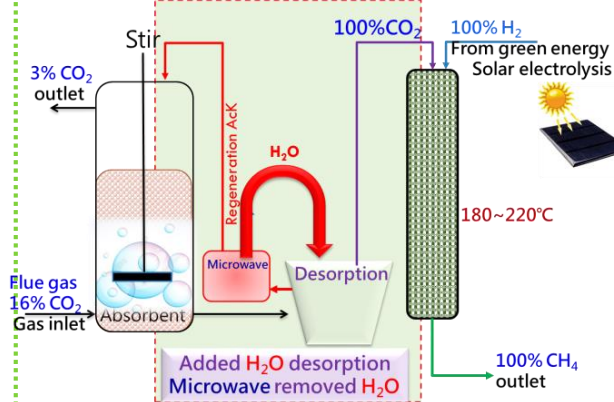
Project Director

Chuh-Yung Chen

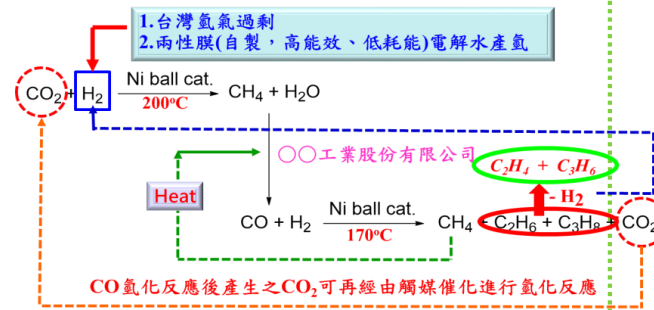
- Design a highly absorbent and highly selective CO₂ separation system of low energy consumption. Prepare catalyst for CO₂ hydrogenation reaction or conversion reaction with high efficiency to react with hydrogen gas or other gas making chemicals. We plan to solve the problems of high emission, high concentration of CO₂, NO_x and SO_x in flue gas.

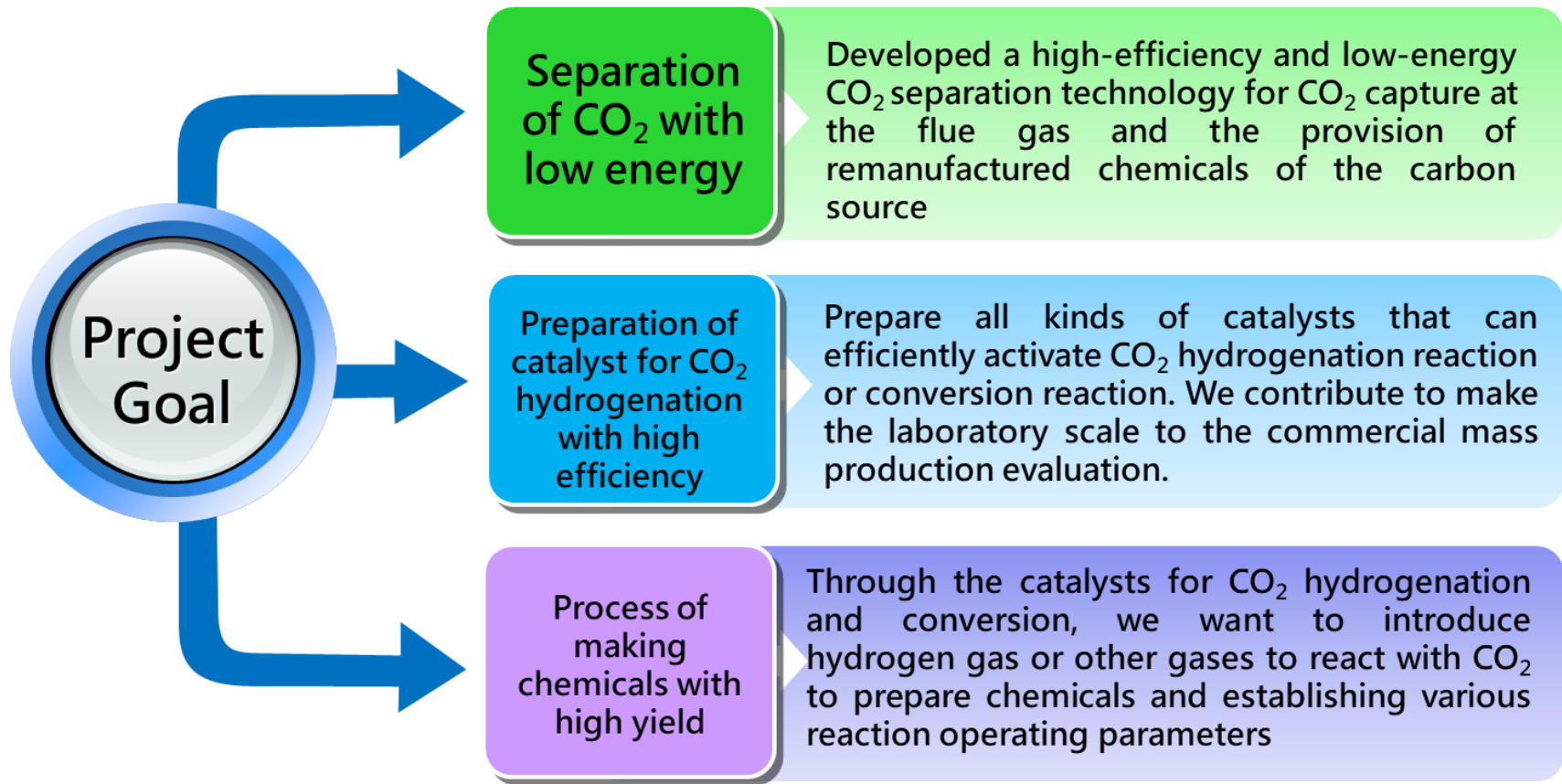
- ◆ Taiwan Patent : 106130511
- ◆ American Patent : 15/716738
- ◆ American Patent : 15/828709
- ◆ European Patent : 17205092.4

醋酸鉀吸收劑加水解吸/微波除水系統



CO₂的碳循環體系規劃





- The CO₂ absorption/desorption regeneration system has been completed to develop a non-alkanolamine absorbent for desorption of CO₂ at 50°C-90°C with > 85% desorption and > 95% regeneration.
- The development of Ni ball and magnetic Ni / Carbon fiber catalyst can make the complete conversion of CO₂ to CH₄ and H₂O at atmospheric pressure and 160 ~ 225°C.