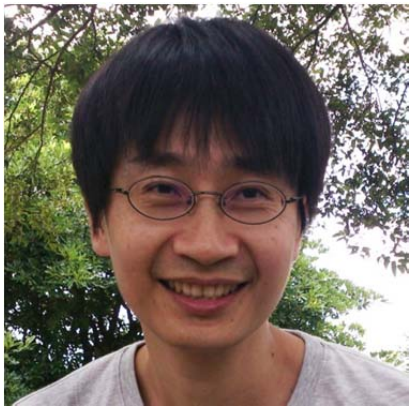

梁茂昌

中央研究院環境變遷研究中心副研究員

得獎著作：

- Sasadhar Mahata, S. K. Bhattacharya1, Chung-Ho Wang, Mao-Chang Liang, 2013, "Oxygen Isotope Exchange Between O_2 and CO_2 over Hot Platinum: An Innovative Technique for Measuring $\Delta^{17}O$ in CO_2", *Analytical Chemistry*, 85, 6894−6901.

- Mao-Chang Liang, Sasadhar Mahata, 2015, “Oxygen Anomaly in Near Surface Carbon Dioxide Reveals Deep Stratospheric Intrusion”, *Scientific Reports*, 5, 11352.

得獎簡評：

CO_2 中的同位素組成對釐清大氣中 CO_2 的來源及其沉降極為重要，申請著作發明高精準度之二氧化碳同位素檢測技術，及氧 17 同位數測定，藉此發現平流層二氧化碳深沉入侵至對流層乃至近地表之堅實證據，是非常有創意及學術貢獻。申請著作一建構技術，利用熱鉑交換氧和二氧化碳中之氧同位素，追蹤並判別大氣中二氧化碳來源與煙滅，這對溫室效應及氣候變遷研究提供新的技術。申請著作二藉由所發明之技術發現平流層二氧化碳深沉入侵對流層和海洋面之證據。其著作對於了解大氣化學有具體貢獻，對於未來生地化研究獲全球氣候變遷也有相當的貢獻。申請著作可精準監測二氧化碳成分，可用來追蹤其傳輸入徑，進而一窺全球環境變遷之重要問題。申請著作本身極具原創性和創新性，富有極大潛力，對未來全球暖化研究將有革命性之長遠影響。其著作利用此其發展的方法分析近地表 CO_2 的 O 異常

源自於平流層的入侵，藉由方法的建立到應用，提供分析溫室氣體的地生化循環提供重要貢獻。

得獎人簡歷：

Mao-Chang Liang received his Ph.D. degree from the Division of Geological and Planetary Sciences, California Institute of Technology, in 2005. Since then, he has joined Research Center for Environmental Changes, Academia Sinica (RCEC). His research group at RCEC focuses on the utilization of rare isotopes, in particular the triple oxygen isotopes, for various biogeochemical cycling studies, including a hot topic on global carbon cycling.

得獎著作簡介：

The development of a novel technique to determine the triple oxygen isotope composition of atmospheric CO_2, a molecule that is of public interest, has greatly improved the precision and throughput of the analysis of the triple oxygen isotopic composition. The triple oxygen isotope composition in tropospheric CO_2 is then utilized to study stratosphere-troposphere exchange. For the first time, the presence of deep stratospheric intrusions at sea level was clearly demonstrated; deep intrusions of stratospheric air down to the lower troposphere or even to the surface are relevant to tropospheric chemistry. An implication is that the stratospheric CO_2 has the triple oxygen isotopes distinct from those originating from the Earth's surface, providing an alternative tracer for refining the knowledge of the global carbon cycle involving CO_2.

得獎感言：

非常感謝中研院提供年輕科學家這個獎項。感謝環變中心尤其是前主任劉紹臣的大力支持，提供一個機會給一位純理論學家從事實驗室方面的研究，同時也感謝地科所和汪中和博士的支持並提供研究空間。最後感謝同事（如翁玉林老師, Prof. Bhattacharya, Prof. Mark Thiemens 和環變中心同仁等）和家人的支持。