

**University of Puerto Rico
Mayagüez, Campus
Chemistry Department
Departmental Seminar**

by

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Rate-based CO₂ Absorption Model

Climate change and global warming are current issues of great interest within the society, and much debate surrounds the emissions of carbon dioxide from the burning of fossil fuels. Although the regulatory environment remains uncertain, carbon dioxide credits are already listed on the market, and expectations are that future regulations which require mitigation of carbon dioxide emissions can be passed. A typical (AGR) acid gas removal system includes two columns and the integration of heat: -CO₂ is absorbed from a solution of amine synthesis gas (MEA or MDEA) at high pressure and ambient temperature in the absorption column and is released from the solution to low pressure and moderate temperature, from the top of the second column (column stripper) – the CO₂-lean solution (from the bottom of the second column) is circulated back to absorb additional CO₂. In this presentation we will discuss a rate-based model for the CO₂ capture using MDEA. We shall discuss the process fundamentals as well as the design criteria for an actual AGR unit.