

MIT Chemical Engineering Department

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# “A CO<sub>2</sub> Neutral Chemical Industry: A Dream or Reality?”



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**3:00 PM (Reception at 2:45 PM)**  
**66-110**

**Abstract:** The chemical and steel industry are responsible for a substantial part of CO<sub>2</sub> emissions Worldwide. Most of these emissions relate to combustion of some kind of hydrocarbon resource, typically of a fossil origin. The key question of the coming decades is how can these CO<sub>2</sub> emissions be reduced in a sustainable way without destroying/relocation of the whole process industry. In Ghent university we are working on reducing the CO<sub>2</sub> emissions of olefin production, steam reforming and during steel production.[1] The availability of green electricity is a big driver in this context although electricity is currently dark grey in most countries. In this presentation recent work on these 3 processes will be discussed and it will be illustrated how we are scaling up using the multi scale modeling approach in combination with extensive validation at different scales. Pilot units have been and are being constructed to demonstrate the real potential.