

## SMS Fall 2022 Seminar Series

Friday Oct 7 | 2:30pm | Biodesign Auditorium

### Direct Air Capture for Carbon Management

The world needs energy, but has overspent its carbon budget. To avoid catastrophic climate it is now necessary to balance the extraction of carbon with sequestration, even if fossil energy is phased out as fast as possible. Carbon dioxide removal from the environment will require innovative scalable technologies including the removal of carbon dioxide from ambient air. This talk will introduce the concept of direct air capture as a means of closing the carbon cycle and of removing excess carbon from the environment. It will also discuss the integration of direct air capture into the ongoing energy transition and its impact on the emerging regulatory frameworks aiming to stabilize the climate.

### Klaus Lackner, PhD

*Professor, School of Sustainable Engineering and the Built Environment  
Senior Global Futures Scientist, Global Futures Scientists and Scholars  
Arizona State University*

Klaus Lackner is the director of Center for Negative Carbon Emissions and professor at the School of Sustainable Engineering and the Built Environment of the Ira A. Fulton Schools of Engineering, Arizona State University. Lackner's research interests include closing the carbon cycle by capturing carbon dioxide from the air, carbon sequestration, carbon foot-printing, innovative energy and infrastructure systems and their scaling properties, the role of automation, robotics and mass-manufacturing in downscaling infrastructure systems, and energy and environmental policy. His interest in self-replicating machine systems has been recognized by Discover Magazine as one of seven ideas that could change the world.

In 1999, Lackner was the first person to suggest the artificial capture of carbon dioxide from air in the context of carbon management. His recent work at Columbia University as director of the Lenfest Center for Sustainable Energy advanced innovative approaches to energy issues of the future and the pursuit of environmentally acceptable technologies for the use of fossil fuels.

He is a fellow of the American Association for the Advancement of Science and he was recognized for contributing to the 2007 Nobel Peace Prize for the IPCC. He is also a member of the steering committee for the Earth Institute at Columbia University.

