

Lecture

Green Chemistry: Inventing a Circular Economy

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The natural world is a beautiful and intricate system of intertwined and overlapping materials ecosystems. As humans, our understanding of the various interrelationships is only at the most basic level. One important reason why these naturally interdependent cyclic systems exist with exquisite complexity is because of the very fact that they all co-emerged over hundreds of thousands of years in the presence of one another. Evolutionary forces drove symbiotic relationships by selecting for and against mechanisms and materials that were conducive to the success of the entire multi-component matrix. As human society seeks to create a circular economy, we unfortunately have the disadvantage that our various industrial “species” have developed with a level of independence, essentially unaware of adjacent processes. We are forced into a position of creating connectivities that were not part of the considerations in the original design. Obviously this creates a daunting challenge. While there have been some examples of the circular economy designed and deployed in many industrial settings, the vast majority of industrial products and processes continue to exist disconnected and unsustainable over the long run. The pathway to create most of these technological ecosystems will require the inventive application of green chemistry (the molecular level mechanistic underpinnings of sustainability). This presentation will describe examples of how organizations seeking a circular strategy benefit from integrating the principles of green chemistry with product design, manufacturing and supply chain management.

There is limited space available for this event. Reserve your place by e-mail mail@mistra.org.

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