**Reducing the environmental impact of emerging PV technologies**

Annick Anctil

Michigan State University

Increasing demand for renewable energy has resulted in a new interest for alternative technologies such as photovoltaic (PV). To ensure the long-term success of the industry, the potential negative impacts associated with current and future PV systems must be minimized. Research focus in pollution prevention has shifted from treatment and control to design for the environment, which uses a holistic approach to ensure that all stages of the life cycle of a product or system are environmentally, economically and socially sustainable. The use of proactive sustainability assessment to reduce the environmental impact of new technologies will be illustrated using recent work in the area of photovoltaic (PV). Process based life-cycle assessment (LCA) is used to identify critical steps in current technologies and guide greener alternatives by combining theoretical environmental assessment and experimental work. To ensure the long-term success of the PV industry, the potential negative impacts associated with current and future systems must be minimized throughout all stages from material extraction to end-of-life disposal. Work on the reduction of the cost, health and environmental impact of organic solar cells production, material scarcity, large-scale deployment and end-of-life waste management will be discussed.