The mission of the Center for Sustainable Materials (CSM) to provide the scientific and engineering foundation required to overcome the technical and economic barriers to the establishment of a renewable biobased plastics and composites industry in the 21st century.
The GOALS of the Center for Sustainable Materials

• i) *materials* from and *processes* from sustainable, renewable biomass to replace petroleum-based products;

• ii) *knowledge* to define a new paradigm of ‘product design for sustainability’ to provide a framework for the production and utilization of sustainable materials; and

• iii) *people* trained in the science and engineering of sustainable polymers and composites.
Benefits to Michigan and the US

- The Center for Sustainable Materials (CSM) will team scientists and engineers from the agricultural and natural resources, chemical, biological and engineering communities to conduct research on the fundamental scientific and engineering issues necessary to produce sustainable materials.
- Fundamental knowledge, strategies and a framework for conversion, processing and manufacturing of sustainable materials suitable for application in the transportation, housing, infrastructure and appliance sectors.
- Foundation for revitalization of the materials dependent sector of the Michigan and the US will reduce dependence on petroleum and fossil fuels, and will reduce detrimental environmental effects resulting from the use of non-renewable sources.
Critical Research Areas

- extraction, and surface modification of biofibers from plant-based resources
- design and synthesis of biobased chemicals for incorporation into polymers and composites (e.g., eco-friendly plasticizers, compatibilizers, and surfactants)
- processing technologies for combining reinforcements with biopolymers to fabricate biocomposites
- manufacturing methods to produce structural biocomposites
- optimization of biocomposite mechanical properties along with their durability, recyclability, and biodegradability
- establishment of a knowledge-based design methodology that integrates materials selection with process and manufacturing options within a life-cycle framework.