

MICHIGAN STATE
UNIVERSITY

September 30, 2008

TO: Dr. Satish Udpa, Dean
College of Engineering

FROM: Rigoberto Burgueño, Chair
Composite Materials & Structures Center Advisory Committee
College of Engineering

RE: Composite Materials & Structures Center Advisory Committee 2007-2008
Report

Dear Dean Udpa:

This is a report of the activities of the Composite Materials and Structures Center (CMSC) Advisory Committee for the 2007-2008 academic year. During this period the committee was composed of the following members:

- A. Benard, Mechanical Engineering.
- R. Burgueño, Civil and Environmental Engineering (Chair)
- L. Drzal, Composite Materials and Structures Center (Director – exof)
- C. Petty, Chemical Engineering and Materials Science
- D. Reinhard, Electrical and Computer Engineering
- R. Rosenberg, College of Engineering (exof)
- A. Srivastava, Agricultural Engineering
- J. Sticklen, Computer Science and Engineering

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The committee's activities during this period were limited to one committee meeting on May 8, 2008. This has been the extent of the committee activities for the past few years. The main objective of the committee in these meetings is to obtain a report from the CMSC Director regarding: status and achievements during the past year as well as future plans directions and provide feedback and comments. Details of the CMSC activities and plans are to be provided separately by the Director and thus not included here.

During the annual committee meeting the CMSC Director summarized the accomplishments, status, and future plans of the CMSC. The discussion was focused on future directions. A summary of the discussed topics follows:

- The CMSC is still a good resource to the College of Engineering, but the potential for large funding (i.e., centers) items are reducing since current funding initiatives are focused on revolutionary and not evolutionary fields.
- The CMSC have struck a responsive chord outside campus with its activities on bio-based and nano-based materials. This has given visibility to the College and the University.

- The summary of activities for the past 10 months were categorized in three main initiatives:
 - (1) 21st Century Jobs Funds Initiative. The CMSC was successful in several proposals, some in primary role and others in a supportive role. Activity on the proposals secured at the end of the 2006-2007 cycle were continued. Projects included:
 - Multifunctional electrospun nanofibers for sensors
 - Dissolved oxygen sensors for aquaculture monitoring
 - Multifunctional nanocomposite materials
 - Multifunctional material additives for polymer/composites
 - (2) Composites Vehicle Research Center. The CMSC is to provide a supportive role to this initiative led by the Department of Mechanical Engineering. While final approval for the center was still pending at the time of the meeting, the CSMS has been directly involved in the planning of the CVRC and in assisting efforts for additional funding and industrial collaboration.
- The REF Center for Sustainable Materials has been a focus activity of the CMSC for the past years. As this funding was coming to an end, the CMSC Director initiated efforts to develop an industrial consortium from the manufacturing, agricultural and forestry sectors to continue supporting this effort. The CMSC Director reports that changes in national and global priorities and the departure of key personnel have severely reduced the opportunities for supporting bio-based materials research. Therefore, the conclusion was that the outlook to secure center-type funding in this area is problematic.
- Other CMSC initiatives over the past year were:
 - (1) Re-inventing or re-defining the CMSC into another type of college-wide resource focused on materials issues with current priority. The CMSC Director called for meetings with different faculty groups from the CoE to discuss future directions for the CMSC. Out of those meetings, a new focus on nano and multifunctional materials was commonly supported. Thus, one concept under consideration is the re-definition of the CMSC to an “Institute for Nano and Multifunctional Composite Materials” with affiliated faculty sharing interest in this area. Publicity and a kickoff symposium is planned for the Fall semester of 2008.
 - (2) The CMSC is participated on the development of a new center for Alternative Energy Storage Research and Technology (CAESRT). The aim of the center would be to develop innovative, high-impact and fundamental research in materials technology for energy storage.
 - (3) Effort has been placed to develop an International Cooperative Research and Education Program (ICERP) in

Sustainable BioComposite Materials Processing and Manufacturing. The goal is to leverage MSU's land grant focus at a global level by training international students from developing countries with science or engineering training on bio-based materials and processing together with business expertise. Funding is being pursued from the United Nations, the World Bank, the Kellogg Foundation, Dow Chemical and other international groups.

This concludes the reporting for the 2007-2008 period. I would be glad to answer any questions that you may have regarding this report or the activities of the CMSC Advisory Committee.

Sincerely,

A handwritten signature in blue ink, appearing to read "Rigoberto Burgueño". The signature is fluid and cursive, with a large initial "R" and "B".

Rigoberto Burgueño, Ph.D.
Associate Professor of Structural Engineering
Department of Civil and Environmental Engineering

cc: Dr. Lawrence T. Drzal