

# Review Report on LAETA

by

**J. N. Reddy**

**Department of Mechanical Engineering  
Texas A&M University, College Station, Texas 77843-3123**

## Introduction

Following is a summary of the LAETA Scientific Productivity and Budget;

	<b>2003 to 2007</b>	<b>2008</b>
Books	46	30
Chapters in books and other related publications Invited	154	35
Publications in International Journals with peer review	908	258
Publications in National Journals	113	39
Publications in International Conferences	1942	432
Publications in National Conferences	523	96
International Projects	192	96
National Projects	373	190
Organization of Conferences	81	51
Organization of Symposiums	50	28
PhD thesis completed	141	26
MSc thesis completed	278	187
Memberships of Editorial Boards of International Journals	76	87

	<b>2003 to 2007</b>
Ratio PhD. Degrees / Faculty Member / Year	0.2
Ratio papers in International Journals / PhD / Year	1.0
Ratio papers in International Journals / Faculty Member / Year	1.5

	2008
Ratio PhD. Degrees / Faculty Member	0.19
Ratio M.Sc. Degrees / Faculty Member	1.9
Ratio papers in International Journals / PhD	1.2
Ratio papers in International Journals / Faculty Member	1.8
Ratio papers in International Proceedings / PhD	2.1

**LAETA budget for the period 2003-2007 is as follows:**

**Global - 38 100 000€ (7 620 000€/year)**

**FCT Projects - 21%**

**FCT Plurianual - 10%**

**European Research Projects- 32%**

**Industry & Public Inst.- 37%**

- 36 000€ per PhD / year**
- 54 000€ per IST/FEUP/UC faculty member / year**

**For the period 2008:**

**Global - 8 390 000€**

**FCT Projects - 13%**

**FCT Plurianual - 23%**

**European Research Projects-25%**

**Industry & Public Inst.- 39%**

- 40 000€ per PhD**
- 60 000€ per IST/FEUP/UC faculty member**

Professor J. N. Reddy is a member of the Scientific Advisory Council that is responsible for the evaluation of the following five research programs (with the **proposed** classification):

1. [Mechanical Design](#), (IDMEC/IST)  
Coordinator: Prof. Carlos Mota Soares  
Classification: Excellent

6. [Aerospace Science & Technology](#), (CCTAE/IST)  
Coordinator: Prof. Braga Campos  
Classification: Very Good
7. [Design and Experimental Validation](#), (IDMEC/FEUP)  
Coordinator: Prof. Renato N. Jorge  
Classification: Excellent
10. [Experimental Mechanics and New Materials](#), (INEGI/FEUP)  
Coordinator: Prof. J. Silva Gomes  
Classification: Excellent
11. [New Technologies and Advanced Manufacturing Processes](#), (INEGI/FEUP)  
Coordinator: Prof.A. Barbedo Magalhães  
Classification: Very Good

and Research Lines:

- 3 [Aeronautics](#)  
Coordinator: Prof. Afzal Suleman , IDMEC/IST  
Evaluation: Excellent
- 4 [Space](#)  
Coordinator: Prof. Braga Campos, CCTAE  
Evaluation: Very Good

The Computer Integrated Mechanical Design group is coordinated by Professor Carlos A, Mota Soares while the Experimental Mechanics group is coordinated by Dr. Nuno Maia. Professor Reddy visited the centre during **16-18 of June 2008 and** February 14-17, 2009. On February 16, Professor Rodrigues organized presentations of the Centre's research activities by members of the two groups to Professor Reddy. Professor Reddy also visited IDMEC/IST and IDMEC/FEUP on July 17 and July 20, 2009, respectively. And the presentations were coordinated by Professor Silva Gomes of the University of Porto. This report is largely based on the summary of the activities provided and the presentations made to Professor Reddy.

The other members of the Advisory Council of LAETA visited Lisbon, Porto and Coimbra in September and October 2009. The evaluations are as follows:

By Research Groups,

- 2 [Intelligent Systems](#), (IDMEC/IST)  
Coordinator Prof. José Sá da Costa  
Evaluator Prof. P. Flemming  
Classification: Excellent

- 3 [Manufacturing and Industrial Management](#), (IDMEC/IST)  
 Coordinator Prof. Paulo Martins  
 Evaluator Prof. Niels Bay (2003-2007)  
 Evaluator Prof. A. Erman Tekkaya  
 Classification: Excellent
- 4 [Flow Physics and Simulation](#), (IDMEC/IST)  
 Coordinator Prof. José Carlos Pereira  
 Evaluator Prof. McMullan (2003-2007)  
 Evaluator Prof. Roman Weber (2008)  
 Classification: Excellent
- 5 [Renewable and Sustainable Energy Systems](#), (IDMEC/IST)  
 Coordinator Prof. Pedro Coelho  
 Evaluator Prof. McMullan (2003-2007)  
 Evaluator Prof. Roman Weber (2008)  
 Classification: Excellent
- 8 [System Integration and Process Automation Unit](#), (IDMEC/FEUP)  
 Coordinator Profa. Teresa Restivo  
 Evaluator Prof. P. Flemming  
 Classification: Very Good
- 9 [Advanced studies on Energy in the Built Environment](#), (IDMEC/FEUP)  
 Coordinator Prof. E. Oliveira Fernandes  
 Evaluator Prof. Roman Weber  
 Classification: Very Good
- 12 [Energy, Environment and Comfort](#) , (ADAI/UC)  
 Coordinator Prof. M. Gameiro da Silva  
 Evaluator Prof. Roman Weber  
 Classification: Very Good
- 13 [Forest Fires and Detonics](#), (ADAI/UC)  
 Coordinator Prof. Xavier Viegas  
 Evaluator Prof. Roman Weber  
 Classification: Very Good

By Research Lines,

1 [Transports](#)

Coordinator Prof. M. Seabra Pereira, IDMEC/IST  
 Evaluator Prof. W. Schiehl  
 Evaluation: Excellent

2 [Energy](#)

Coordinator Prof. Oliveira Fernandes, IDMEC/FEUP  
 Evaluator Prof. R. Weber  
 Evaluation: Excellent

- 5 [Fires](#)  
Coordinator Prof. Xavier Viegas, ADAI  
Evaluator Prof. R. Weber  
Evaluation: Very Good

The evaluation and recommendation reports of each Research Group (13) and Research Line (5) are in Appendix of this review Report.

### Conclusions and recommendations

The following observations are made on the research activities of the groups.

1. All research groups have an *Excellent* or *Very Good* record of publications in prestigious international journals.
2. Many members are internationally known leaders in their research areas. In particular, editors of 4 international journals and served as members of the editorial boards of several major journals; and organized very important international scientific conferences.
3. The Research Units are very active in participating in research and industrial projects at international and national level.
4. The full time researchers contracted under the Science Program are well integrated in the research plans and activities of the Research Groups and Lines.
5. LAETA was created in June 2008 and it is making a visible effort to better integrate the different research groups and to increase the collaboration between the different Units.
6. The laboratory facilities should benefit from an active effort in updating equipment.
7. Contracting several (10) laboratory technicians has been identified as a crucial measure for the development and enhancement of experimental activities.
8. All new full time research staff to be hired by LAETA should be actively involved in multidisciplinary research projects with the collaboration of different Units.
9. LAETA should organize every two years Thematic Conferences in Energy and Fires, and Transports, and Aeronautics and Space to increase significantly the collaborative and multidisciplinary research between different Units and bring increased visibility to the groups themselves and their institutions.
10. The two researches lines of "Aeronautics" and "Space" should be combined into one research line called "Aeronautics and Space" because of their intimate relationship and activities.
11. To create 3 new research lines in the Associative Laboratory Framework in order to include better the Mechanical Design, Manufacturing and Engineering Systems activities.

12. To admit within LAETA, the Research Unit of Aeronautics and Space of University of Beira Interior as a Research Group, from January 2010.
13. To organize the Research Group of Experimental Mechanics and New Materials and New Technologies and Advanced Manufacturing Processes as one Research Group.
14. The great majority of Researchers of LAETA are organized in Research Groups evaluated as *Excellent*.
15. LAETA should consolidate the joint PhD. Programs with MIT and UT Austin
16. LAETA should invest a significant amount (about 15-20%) of the FCT programmatic funding in multidisciplinary research projects between different units.
17. The less active "Integrated Members" of LAETA should become "Collaborating Members".