Joint CWRU/Brazil Network of Excellence:
Dual MSc and PhD Programs

Proposer: João Maia
Date: December 1, 2014
SUMMARY:
The main objective of this proposal is to create a Network of Excellence in Engineering and Related Areas, between Case Western Reserve University (CWRU) leading Brazilian Universities, Research Institutions and Industry, with the support of CAPES on the Brazilian side. The main goals of the network are to promote the collaboration between the companies, Brazilian Universities and CWRU in basic and applied research at the highest level, and to foster the education of highly skilled scientists and engineers that will be the next generation of technical leaders for Brazil. The first two scientific areas to be implemented within the Network will be Polymer and Complex Fluids Science and Engineering and Biomedical Engineering.

Central to the Network will be the offering of new Dual Advanced Graduate Program, with a focus on the PhD level. These programs will include an Integrated Curriculum that will see them share their academic upbringing and research time between the Brazilian universities and CWRU, with the possibility of performing short internships in American and Brazilian industry.

Specific differentiating characteristics of the PhD program are:

i) The program will be a Dual Degree 4-year PhD, with degrees issued by CWRU and by the Brazilian University.

ii) The official and sole language of the program will be English and language proficiency entry requirements will be those of CWRU. Students will be admitted preferentially with a MSc degree or equivalent, in the areas of Engineering, Physics, Chemistry or Materials Science.

iii) The program will offer the possibility of summer internships at Brazilian and US companies. In addition, companies that support the program financially will have input in defining the research areas and topics of the students they are sponsoring.

iv) The program will accept regular students, as well as company employees, who will be able to take the degree partial or full-time.

v) Students without a Masters degree will be able to enroll in the program but will spend the first year taking a Professional Masters at CWRU or a Masters at a Brazilian university prior to enrolling in the PhD program.

This project was already approved by both CAPES and CWRU and is in the process of being signed by both parties. It will cover two PhD programs: i) Polymer and Colloid Science and Engineering, coordinated by the Department of Macromolecular Science and Engineering, starting in August 2015; ii) Biomedical Engineering, coordinated by the Department of Biomedical Engineering, starting in August 2016.

Funding of $7,500 (seven thousand five hundred dollars) is being requested from the Center for International Affairs for the coordinator, João Maia, to travel to Brazil over the next year (2015), in order to supervise and implement the effective launch of the PhD program in Polymer and Colloid Science in Engineering in August 2015. These include meetings with Brazilian authorities, e.g., CAPES, CNPq and the State Foundations for Research and Development, as well as with the partner Brazilian Universities and with potential industrial supporters of the program, as aspect that will be essential to the sustainability of the project.
OUTCOMES AND BENEFIT TO CWRU:
The program will result in up to 160 PhD students sponsored by CAPES attending and getting their degree from CWRU over the next 7 years, equally split between the Polymer and Colloid Science and Engineering and the Biomedical Engineering programs. In addition to the financial income (see Metrics below), CWRU in general and CSE in particular will benefit from a surge in PhD graduate numbers.

METRICS:
The program will result in an income of approximately $36,000,000 for CWRU and the graduation of up to 160 PhD students over the next 7 years, equally split between the two PhD programs.

SUSTAINABILITY:
CAPES has expressed their intent of using this program as a template for future programs in other areas. They have also expressed their interest in continued support of the program after the initial seven-year period, subject to funds availability. In addition, several companies have expressed interest in supporting the program financially, and efforts are underway to secure the support of more corporate partners.

BUDGET:
At present, it is anticipated that João Maia will make at least three, and possibly four, trips to Brazil in 2015, at an estimated cost of $3,750 each. This cost includes the airfare and taxis (~$2,000), up to one week of hotel stays (~$1,400) and the corresponding living costs, e.g. food (~$350).

Any costs in excess of the $7,500 being requested from the Office for International Affairs, will be supported by CAPES and/or a Bilateral R&D project João Maia has with the Federal University of Rio de Janeiro.

TIMELINE:
The project will run from January 1, 2015 to December 31, 2015.