University of Waterloo

Department of Civil Engineering

Faculty of Engineering

University of Waterloo
200 University Avenue West
Waterloo, Ontario, Canada
N2L 3G1

519-888-4567
Fax 519-888-6197/519-868-4349

April 15, 2005

TO WHOM IT MAY CONCERN:

I have learned that the Department of Mechanical Engineering of PUC has an opening for a permanent faculty position and that Marco Antonio Meggiolaro is one of the candidates. Since I am familiar with his excellent research in my area of fatigue and fracture mechanics I am taking the liberty of writing this letter in support of his candidature. I am used to evaluating North American Candidates for promotion to the rank of full professor and assuming that the needs of Brazilian universities in technical areas are similar to ours I will address the areas of the quality of research publications, supervision of graduate student projects resulting in publication of their work, the ability to attract research funding, the quality of undergraduate and post graduate teaching and the ability to interact productively with other department members and outside researchers.

PUBLICATIONS

The most impressive of Marco Antonio's publications is the fatigue textbook he co-authored with Jaime Castro Fadiga sob Cargas Reais de Servico that is the most comprehensive in the area. I have borrowed numerous examples from it for my post graduate class. When it is translated into English I expect it to be widely adopted throughout the world. The accompanying VIDA fatigue design software is both an excellent adjunct to the book and a stand alone design tool with very good instructions. I am familiar with his publications in the area of fatigue and fracture. They are of excellent quality and published in good journals and conferences. I have listened to a number of his presentations in Brazil and at various other conferences. His presentations in both Portuguese and English are logical, clear and concise. I noted when I encountered him at a conference in Tours France that he is also fluent in French. By way of comparison Marco Antonio's publications in quantity and quality would easily meet the requirements for promotion to full professor in North American universities.

SUPERVISION OF AND PUBLICATION WITH GRUADUATE STUDENTS

In evaluating a professor we expect that he will not only have supervised graduate students but also have published their thesis work with them. So far, Marco Antonio has advised nine undergraduate students on their final year projects. He currently has four MaSc students in control and robotics who started their studies in 2004. He has so far submitted with them two journal and four conference papers. I expect to see several more publications before they finish

their degrees. Given his popularity with PUC students I expect to see the number of his students and their publications increase.

TEACHING ABILITY

In his presentations at conferences Marco Antonio has the ability to make complicated subject matter understandable even in English that for him is a second language. The same clarity must apply to his undergraduate teaching since he has been repeatedly honored by graduating students (as parininfo twice and once as professor homenageado.) Also, his graduate course attracted an above average number of students (9) indicating he is also popular with graduate students. While I was in PUC on separate occasions I met some of the students who worked with him on the last two national robot competitions. They were obviously very enthusiastic. Later I learned that the PUC robots won the last competition-quite an accomplishment for mechanical engineers in an area dominated by electrical land computer engineers. (in the previous competition their robot was disqualified before the final round on a surprising ruling that it was overweight after it had shown it was superior to the competing robots.)

RESEARCH SUPPORT

After a variety of scholarships Marco Antonio currently has a CAPES Prodoc scholarship and has a substantial (one half million real) grant from Petrobras to design and build an underground fuel tank inspection system for service stations. This is an important problem in Brazil since there are, so far, no reliable inspection procedures for these tanks that are responsible for more than one half of the country's soil contamination incidents. Also, I have been told that another similar grant is expected to improve the performance of underwater robots. He together with Jaime Castro expects to get a one half million real grant to develop control systems for three dimensional rock testing machines they designed and built for Petrobras. Also they are in the process of finalizing a grant from the Brazilian air force for fatigue research. I also expect their VIDA fatigue analysis program to be a commercial success. The co-operation between Marco Antonio and Professors Castro and Martha has created a strong research group that merits the support of PUC. In my area the work currently being done at PUC is the best in Brazil.

INTERACTION WITH OTHER FACULTY

In the research area that I am familiar with, there is strong evidence of a close collaboration between Marco Antonio and other faculty. As a member of the PhD examining committee for Antonio Carlos Miranda and in subsequent conversations with others it was clear that Marco Antonio co-operates well with other faculty. In discussing their textbook and VIDA program I have found both Meggiolaro and Castro accepting of criticism and eager to talk about improvements.

Sincerely,

T.H. Topper
Distinguished Professor Emeritus

TH/da