

## MAXIMILIANO MONTENEGRO

Facultad de Educación Pontificia Universidad Católica de Chile Avda Vicuña Mackenna 4860, Macul Santiago, Chile

March 15, 2010

To whom it may concern,

My name is Maximiliano Montenegro and I am an associate professor of the College of Education at the *Pontificia Universidad Católica de Chile*, Santiago, Chile. My outgoing physics research has allowed me to be a collaborator of Dr. Sultana N. Nahar and her group for several years.

I met Dr. Nahar while I was taking an Astronomy graduate class, Astrophysics and Spectroscopy, at the Astronomy Department of the Ohio State University. Dr. Anil K. Pradhan was teaching this Astronomy class in collaboration with Dr Nahar and they introduced me on the subject of Atomic Spectroscopy. At that time, I was a Ph.D. student in Science Education at the Ohio State University and I took her class to fulfill the science requirements of my degree. Her enthusiasm on teaching and her deep content knowledge made grown my interest on the subject and, finally, I joined the group of Dr. Pradhan and Dr. Nahar on Atomic Astrophysics. Specifically, Dr. Nahar provided me partial support for 2 years from her own research projects.

Dr. Nahar is a world known expert on radiative processes and her guidance has been crucial for developing my own line of research on Atomic Physics. She introduced me on the subject of radiative atomic processes, as photo-excitations and photoionization, and the use of the powerful R-matrix codes to calculate them. The R-matrix codes are the current state of the art on computational calculations of atomic processes and her group is continuously working on improving them by the implementation of the latest computational techniques. My initial work was on collisional process and we have published already two papers in *J. Phys. B.* Now, after a couple of years of work, we are ready to submit a joint paper on photoionization in *J. Phys. B. Lett* that will introduce some light on the current controversy on the Sun element composition. All of these years, we have been present in the most relevant physics conferences, as DAMOP and



EPEAC, showing jointly our latest research results.

The versatility of Dr Nahar's research is revealed by their current collaboration with the Department of Radiation Medicine at The Ohio State University. Dr. Pradhan and Dr. Nahar are tightly working with them on an interdisciplinary nanoscience project for developing X-ray spectroscopy for biomedical applications. As a collaborator on this interdisciplinary project, we have presented our results in conferences and even we have published two papers in *J. Phys. Chem.* where we shown innovative applications of X-ray spectroscopy in medicine. Also, I will be a coauthor of Dr. Nahar's chapter in the book of "Simulations in Nanobiotechnology" to be published by CRC press soon.

The knowledge I have gained from my work with Dr. Nahar has been crucial to my current position at the *Pontificia Universidad Católica de Chile*. As a professor, it is required that I perform research activities at international standards along with my teaching duties, and international cooperation are highly recommended. My college expects that I engage students on research, both at the undergraduate and the graduate level, as a way to improve Science Teacher Education in my country. As a consequence, we have an undergoing close collaboration through video conferencing, emails, and short visits, that I will extend trough a collaboration project that I am submitting at my school, allowing student at any level to be fully involved in our research.

I have worked closely along these years with Dr. Nahar and we have acquainted at the professional and personal level. She is a strong researcher, fully committed with her work and her natural abilities as a mentor, make her a valuable person at any academic department. I strongly support her application and I wish all the best for her.

Sincerely,

Dr. Maximiliano Montenegro