Harvard University
60 Garden Street, MS-10
Cambridge, MA 02138

November 9th, 2015

Professor Eric D. Isaacs
Provost of the University
University of Chicago

Dear Professor Isaacs and Members of the Selection Committee:

I am responding to your website's advertisement and Prof. Fred Ciesla's nomination to apply for a Provost's Career Enhancement Postdoctoral Scholarship (PCEPS) at the University of Chicago. I am currently a graduate student in the Harvard University Department of Astronomy and I will obtain my Ph.D. in May 2016. My research interests cover several aspects of planet formation and composition in the context of protoplanetary disk evolution. As a PCEP scholar, I believe I can contribute to the University's diversity by fostering collaborations with leaders in this area of research both in the Astronomy and Geophysical Sciences Departments.

More than one thousand extrasolar planets have been discovered within the past two decades, and their diversity in terms of mass, radius, location and composition provides an exciting field of research. For this purpose, it is thus crucial to explore and understand how planets obtain their compositions. Planets are born in protoplanetary disks, which means that their compositions are determined by and tightly linked to the structure and composition of the disk. However, the disk-planet connection, both from a dynamical and chemical perspective, has not yet been considered in detail. For my postdoctoral research, I will develop a holistic chemo-dynamical framework to explore how disk chemistry and dynamics, as well as the dynamics of nascent planets and planetesimals, regulate the compositions of mature giant planets. The University of Chicago is the best place for me to pursue this research, due to its opportunities for valuable collaborations with experts in protoplanetary disks and exoplanets, such as Prof. Fred Ciesla, a leader in protoplanetary disk dynamics, chemical composition and evolution, or Prof. Leslie Rogers, an expert in exoplanet theory. Additionally, the Department of Astronomy hosts leaders in detecting and characterizing worlds outside the Solar system, such as Prof. Dan Fabrycky and Prof. Jacob Bean, which presents great prospects in connecting my theoretical research work with observations.

My interests are not limited to research. As an aspiring faculty member, I aim to educate and inspire the next generation of astronomers, and the opportunity to teach as part of my PCEPS tenure would provide an ideal environment to achieve this goal.

In the attached documents I have enclosed a statement of my past research experience and future research plans, a copy of my curriculum vitae, and a statement of my teaching experience and philosophy. If you require additional information, please contact me via email.

Sincerely,

Ana-Maria Piso