

# Application to Graduate with Honors

Student ID: \_\_\_\_\_

I plan to defend in: FALL / (SPRING) of 20 11

## Personal Information:

Name: <u>Pegah Naeimi</u>
Address: <u>3600 Iris Ave # D</u> <u>Boulder, Co 80301</u>
CUE-mail: <u>pegah.naeimi@colorado.edu</u>
I am an: <u>(IN-STATE)</u> / OUT-OF-STATE student

## Academic Information:

<input checked="" type="checkbox"/> I plan to graduate with <i>Departmental Honors</i> in: <u>Physics</u>
<input type="checkbox"/> I plan to graduate with <i>General Honors</i>
Cumulative GPA: _____

Please attach a brief **PROSPECTUS**, **BIBLIOGRAPHY**, and **TIMELINE** of your thesis project to this application. When summarizing your work, consider the following:

- What is the problem you are investigating?
- What is the focus of your study?
- What is the hypothesis you are testing?
- What is your goal in this study?

Primary thesis advisor: Name: Deborah S. Jin Dept: Jila (physics)

List the other members of your committee:

Name: John Cumalat Dept: physics

Name: Robert Batey Dept: Biochemistry

Name: \_\_\_\_\_ Dept: \_\_\_\_\_

Name: Leo Radzihovsky Dept: Physics

## Departmental and General Honors Committee Checklist:

- Applicant has a total of at least three committee members.
- At least one Honors Council Representative is included on committee.
- At least one committee member from an outside department.

APPLICATION CONTINUED ON BACK OF THIS SHEET

Please initial if you are pursuing Departmental Honors:

P.N. I have consulted with my department and have completed (or am completing) the requirements they have established.

**For Honors Council Representative:**

I have met with applicant and approve him/her for departmental honors.

Printed Name: John P. Cimalat Signature: John P. Cimalat

Please initial if you are pursuing General Honors:

P.N. I have completed (or am completing) the requirements for graduating with General Honors.  
Please list the courses you have or are taking toward General Honors:

~~Honors seminar (6 credits)~~ ~~E & M (I, II)~~  
~~classical mechanics (I, II)~~ ~~quantum mechanics (I, II)~~

**For General Honors Council Member:**

I have met with applicant and approve him/her for general honors. I agree to be on his/her defense committee.

Printed Name: \_\_\_\_\_ Signature: \_\_\_\_\_

**For the Thesis Advisor:**

I have met with the applicant to discuss the proposed work and agree to provide the necessary help and direction for this thesis project.

Printed Name: Deborah Jin Signature: Deborah Jin

**For the Student:**

I have read the requirements for graduating with honors at the University of Colorado. I also understand that my designation will be sent to the CU email address that I have provided and will not be given out over the phone.

Signature: Yueh Nany Date: 12/2/10

*For additional graduation information including requirements, guidelines and deadlines, you can download them online at [www.colorado.edu/honors](http://www.colorado.edu/honors)*

Pegah Naeimi

12/01/2010

I am planning on graduating with honors in spring 2011. I am currently working at Jila with Dr. Deborah Jin in the Bose-Fermi mixture lab.

#### PROSPECTUS:

The focus of my project is to optimize magneto-optical traps, which are used in many AMO experiments. My goal is to increase the number of trapped atoms inside the MOT and the technique that I am using is called, Light Induced Atomic Desorption (LIAD). The advantage of using this technique is that it gives me the ability to control the pressure inside the MOT as a function of time. I have to find the threshold at which the number of trapped atoms inside the MOT is maximized without harming the experiment. (We like to have low pressure in the second stage of the experiment ). My hypothesis is that we can increase the number of atoms in the MOT and still keep the pressure in the science cell (second stage) low enough to be able to perform the experiment.

#### TIMELINE:

My plan is to operate on the MOT that I have been building with my lab partner, on my own by the end of this year. Right now I have been able to make a Rubidium MOT but I have not yet made a Potassium MOT, which I am also planning on finishing by the end of this year. I will be setting up the LIAD in January, and take data in February. I will write my thesis in March and make the corrections the April before my defense.

#### BIBLIOGRAPHY:

Foot Christopher J. Atomic Physics. Oxford : Oxford University Press, 2005.

Telles, Gustavo, et al. "Light-Induced Atomic Desorption for Loading a Sodium Magneto-Optical Trap"

Physical Review 31 March 2010

Klempt, C, et al. "UV Light-Induced Atom Desorption for Large Rubidium and Potassium Magneto-Optical

Traps" 2 February 2008