# Xiaomeng Liu

11 Oxford St, LISE 406, Cambridge, MA 02138
E-mail: xiaomengliu@g.harvard.edu
Webpage: http://xiaomengliu.com

## Personal Profile:

I am Ph.D. student at Harvard University specialized in experimental condensed matter physics. My current research directions are quantum Hall effect and exciton condensation in graphene heterostructures. Our experiments involve fabricating high quality graphene devices and conducting low temperature transport measurements. I also have various design and fabrication skills related to or outside of my research area.

## Education:

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| Harvard University | Physics | Ph.D. candidate | 07/2014 – Present |
| Ph.D. Adviser: Philip Kim | | | |
| Columbia Univeristy | Applied Physics | Ph.D. candidate | 09/2012 – 06/2014 |
| Columbia Univeristy | Applied Physics | M.S. | 09/2012 – 05/2013 |
| Peking University | Physics | B. S. | 09/2008 – 06/2012 |

## Publications:

1. **Liu, X.**, Watanabe, K., Taniguchi, T., Halperin, B. I. & Kim, P. Quantum Hall Drag of Exciton Superfluid in Graphene. *Nature Physics, in press* (2017). at https://www.nature.com/nphys/journal/vaop/ncurrent/full/nphys4116.html

2. **Liu, X.**, Wang, L., Fong, K. C., Gao, Y., Maher, P., Watanabe, K., Taniguchi, T., Hone, J., Dean, C. & Kim, P. Frictional Magneto-Coulomb Drag in Graphene Double-Layer Heterostructures. *Phys. Rev. Lett., in press* (2017). at http://arxiv.org/abs/1612.08308

3. Crossno, J., Shi, J. K., Wang, K., **Liu, X.**, Harzheim, A., Lucas, A., Sachdev, S., Kim, P., Taniguchi, T., Watanabe, K., Ohki, T. A. & Fong, K. C. Observation of the Dirac fluid and the breakdown of the Wiedemann-Franz law in graphene. *Science 351, 1058–1061 (2016).* at http://science.sciencemag.org/content/351/6277/1058

4. Shimazaki, Y., Yoshizawa, T., Borzenets, I. V., Wang, K., **Liu, X.**, Watanabe, K., Taniguchi, T., Kim, P., Yamamoto, M. & Tarucha, S. Landau level evolution driven by band hybridization in mirror symmetry broken ABA-stacked trilayer graphene. (2016). at http://arxiv.org/abs/1611.02395

5. Crossno, J., **Liu, X.**, Ohki, T. A., Kim, P. & Fong, K. C. Development of high frequency and wide bandwidth Johnson noise thermometry. *Appl. Phys. Lett. 106, 23121 (2015).* at http://aip.scitation.org/doi/10.1063/1.4905926

## Presentations:

"Quantum Hall drag of exciton condensation in bilayer graphene double layer" APS March Meeting, March 2017

"Exciton superfluidity in graphene double layers" BACON+ Meeting, Sep 2016

"Coulomb drag and exciton condensation in graphene quantum hall double layers" ICPS, Aug 2016

"Anomalous Coulomb drag in bilayer graphene double layers" APS March Meeting, March 2016

"Anomalous Coulomb drag in bilayer graphene double layers" Big Ideas in Quantum Material, Dec 2015

"Coulomb drag in graphene quantum Hall bilayer systems" APS March Meeting, March 2015

"Magneto and Hall drag in graphene double-layer" APS March Meeting, March 2014

## Expertise:

*Graphene* *2D heterostructure stacking* *Cryogenics (VTI, He3 and dilution-refrigerator)*

*Nano-fabrication* *Quantum Hall effect* *Low-noise electrical measurements*

*Condensed Matter Physics* *Matlab* *Electronics*

## Skills:

*Machining (CNC Mill, Lathe, laser cutter)* *2D&3D modelling (AutoCAD, Fusion360, Solidworks)*

*C* *Web designing (html, css, bootstrap, Wordpress)* *Circuits design (EAGLE CAD)*

*Embedded system and programming (AVR microcontroller, AVR-C)* *Illustrator&Photoshop*