

## Harvard Self-Interacting Dark Matter Workshop, August 7-9, 2013

This is a workshop on self-interacting dark matter and challenges to LambdaCDM cosmology, to be held at Harvard University from August 7 to 9. Our goal is to bring together a mix of astrophysicists and particle theorists to discuss the possibility that dark matter has interesting self-interactions, as well as possible observational problems (like the core/cusp problem or the recent "Too Big To Fail" problem) with the standard picture of cold, collisionless dark matter. (We also welcome--and encourage!--participation from those who think there are no such problems, e.g. that baryonic feedback solves them. We'd like to hear the full range of opinions.)

We intend this to be a workshop, not a conference, with ample opportunity for free discussion and collaboration. We will bring together experts from a range of disciplines, including observational astronomers, specialists in galaxy formation, and particle physicists with model-building backgrounds, so that we can all learn from each other. We will aim to have review talks of various subjects, although we want to avoid scheduling too many talks to allow plenty of time for discussion and collaboration.

Speakers include:

- Mike Boylan-Kolchin (Maryland)
- Alyson Brooks (Rutgers)
- James Bullock (UC Irvine)
- Francis-Yan Cyr-Racine (Caltech)
- Will Dawson (UC Davis)
- Fabio Governato (UW Seattle)
- Manoj Kaplinghat (UC Irvine)
- Rachel Kuzio de Naray (Georgia State)
- Ranjan Laha (Ohio State)
- Annika Peter (UC Irvine / Ohio State)
- Miguel Rocha (UC Irvine)
- Kris Sigurdson (UBC)
- Louie Strigari (Stanford)
- Sean Tulin (Michigan)
- Hai-Bo Yu (Michigan)
- Jesus Zavala Franco (Perimeter)

Local organizers/participants include: JiJi Fan, Marat Freytsis, Andrey Katz, Lisa Randall, Matt Reece, Matt Schwartz, Jessie Shelton, Mark Vogelsberger, Matt Walker

Other registered participants (list under construction):

- Kim Boddy (Caltech)
- Chris Brust (Johns Hopkins)
- Matt Buckley (Rutgers)
- Xingang Chen (Cambridge)
- Mathieu Cliche (Cornell)
- Greg Dooley (MIT)
- Adrienne Erickcek (Perimeter)
- Marco Farina (Cornell)
- Claudia Frugiuele (Fermilab)
- Alexander B. Fry (UW Seattle)
- Brendan Griffen (MIT)
- Ben Heidenreich (Harvard)
- David Hernandez (MIT)
- Yevgeny Kats (Rutgers)
- Eric Kramer (Harvard)
- Tongyan Lin (Chicago)
- Marie Machacek (Harvard)
- Matthew McCullough (MIT)

- Cristina Popa (Harvard)
- Stephen Portillo (Harvard)
- Chanda Prescod-Weinstein (MIT)
- Scott Randall (Harvard)
- Rudolph Schild (Harvard)
- Tracy Slatyer (IAS/MIT)
- Meng Su (MIT)
- Flip Tanedo (Cornell)
- Jesse Thaler (MIT)
- Dave Tucker-Smith (Williams)
- Reinout van Weeren (Harvard)
- Ruslan Vaulin (MIT)
- Mobolaji Williams (MIT/Harvard)
- Andrew Zentner (Pittsburgh)

We will cap the number of participants at 60. To register to attend the workshop, please send an email to [harvard.sidmworkshop@gmail.com](mailto:harvard.sidmworkshop@gmail.com).

## Tentative Schedule

We expect to have all talks in Jefferson 250 on the Harvard campus (not at the CfA). This is a short walk from the Harvard Red Line station.

### Wednesday, 8/7

9:00 Breakfast / coffee

9:30 - 10:15 Mike Boylan-Kolchin "Beyond Lambda CDM? Astrophysical Motivations and Controversies"

11:00- 11:30 James Bullock "Solving Too Big to Fail: Baryon or Dark Matter Physics?"

12:00 - 2:00 Lunch

2:15 - 3:00 Annika Peter "Observations and SIDM simulations"

3:00 - 3:30 Manoj Kaplinghat "Complementary searches for self-interacting dark matter"

3:30 - 4:00 Coffee break

4:00 - 4:30 Miguel Rocha

4:45 - 5:15 Alyson Brooks

### Thursday, 8/8

9:00 Breakfast / coffee

9:30 - 10:15 Hai-bo Yu "Beyond Collisionless Dark Matter: From a Particle Physics Perspective"

11:00 - 11:30 Lisa Randall "Double-disk dark matter"

12:00 - 2:00 Lunch

2:15 - 2:45 Kris Sigurdson "Dark Atoms and the Physics of Dark Acoustic Oscillations"

2:45 - 3:30 Francis-Yan Cyr-Racine "Cosmological signatures of interacting dark matter"

3:30 - 4:00 Coffee break

4:00 - 4:30 Sean Tulin "Direct detection of SIDM"

4:45 - 5:15 Louie Strigari "Do we need alternatives to cold dark matter?"

### Friday, 8/9

9:00 Breakfast / coffee

9:30 - 10:00 Jesus Zavala Franco "Dark Matter Distribution in Galactic SIDM Halos"

10:15 - 10:45 Rachel Kuzio de Naray "What Low Surface Brightness Galaxies Tell Us About Dark Matter"

11:00 - 11:30 Fabio Governato

11:45 - 12:15 Ranjan Laha

12:30 - 1:00 Will Dawson "How merging clusters will determine if dark matter self-interacts"

1:00 Coffee and lunch

Logistics: talks will start no earlier than 9:30 AM each day, and we expect talks to finish by 1 PM on the third day, so those making travel arrangements can plan accordingly. Lunch will be delivered at about noon on Friday, so any participants rushing off to afternoon flights can grab a bite during the last talk. On the other days, lunch will not be provided, so you can choose among many options on the Harvard campus or in nearby Harvard Square.

## Hotel information:

A block of rooms is reserved at [Irving House](#), near Harvard at 24 Irving St., Cambridge, MA 02138, 617-547-4600 under the name "Harvard Self-Interacting Dark Matter Workshop," \$145+.

Other area hotels to consider:

- [A Friendly Inn](#), near Harvard, 1673 Cambridge St, Cambridge, MA 617-547-7851, \$167+
- [John Jeffries House](#), a bed and breakfast in Boston near the Charles MGH red line stop, \$125+
- [A Cambridge House Inn](#), a convenient walk to the Porter or Davis red line stations
- [Harding House](#) in Cambridge
- [Homewood Suites in Arlington](#), a short ride on the 77 bus from Harvard
- [Best Western Plus Hotel Tria](#), not far from the Alewife station or a 30-minute walk to the Harvard campus
- [Harvard Square Hotel](#)