

## INT Workshop INT 14-57W

### Nuclear Aspects of Dark Matter Searches

December 8 – December 12, 2014

#### Monday, December 8, 2014

8:00am      **Registration in Room C-411**      Fee: \$40.00

*ALL TALKS WILL BE IN ROOM C-520*

9:00am      **Welcome**  
David B. Kaplan, INT Director, & Program Organizers

9:15am      **"Effective Field Theory and Direct Detection"**  
Liam Fitzpatrick, Stanford University

9:45am      **"Model-independent inelastic dark matter"**  
Spencer Chang, University of Oregon

10:15am      **"Dark Matter detection with the XENON project"**  
Ran Budnik, Weizmann Institute of Science

10:45am      **Coffee Break**

11:15am      **"The SuperCDMS Dark Matter Experiment"**  
Peter Redl, Stanford University

11:45am      **"Response function of large nuclei"**  
Jonathan H. Engel, University of North Carolina

12:15pm      **Lunch**

2:15pm      **Discussion: Direct detection & Response**

3:45pm      **Coffee Break**

4:15pm      **Discussion: Direct detection & Response (cont.)**

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**Tuesday, December 9, 2014**

- 9:00am** "Effective Field Theories for Dark Matter and Collider Constraints"  
Tim Tait, UC Irvine
- 9:30am** "PICO (PICASSO + COUPP)"  
C. Eric Dahl, Northwestern University
- 10:00am** "Nuclear physics aspects of dark matter direct detection"  
Achim Schwenk, TU Darmstadt
- 10:30am** Coffee Break
- 11:00am** "Progress Toward an Effective Field Theory Analysis of the LUX WIMP Search"  
Nicole Larsen, Yale University
- 11:30am** "Nuclear structure calculations for an atlas of dark matter experiments"  
Calvin Johnson, San Diego State University
- 12:00pm** Lunch
- 2:00pm** Discussion: Nuclear Structure
- 3:30pm** Coffee Break
- 4:30pm** Discussion: Nuclear Structure (cont.)

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#### **Wednesday, December 10, 2014**

- 9:00am** "Standard model anatomy of WIMP dark matter direct detection"  
Richard Hill, University of Chicago
- 9:30am** "Status of scalar quark matrix elements from Lattice QCD"  
Andre Walker-Loud, College of William & Mary
- 10:00am** "Nucleon matrix elements from lattice QCD"  
Sergey Syritsyn, Brookhaven National Laboratory
- 10:30am** Coffee Break
- 11:00am** "On the phenomenological determination of the pion-nucleon sigma-term"  
Martin Hoferichter, TU Darmstadt
- 11:30am** "Halo-independent dark matter searches"  
Patrick Fox, Fermilab
- 12:00pm** Lunch
- 2:00pm** Discussion: Heavy WIMP EFT & Nuclear matrix elements (6<sup>th</sup> Floor Conference Room)
- 3:30pm** Coffee Break
- 4:30pm** Discussion: Heavy WIMP EFT & Nuclear matrix elements (6<sup>th</sup> Floor Conference Room)  
(cont.)
- 6:30pm** (OPTIONAL) Workshop Dinner at Mamma Melina: <http://mammamelina.com/>

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**Thursday, December 11, 2014**

- 9:00am** "Searching for dark sector states with underground accelerators"  
Maxim Pospelov, University of Victoria
- 9:30am** "Nuclear matrix elements from QCD"  
William Detmold, MIT
- 10:00am** "DM matrix element uncertainties from colliders"  
Yang Bai, Univ. of Wisconsin-Madison
- 10:30am** Coffee Break
- 11:00am** "DarkSide"  
Andrea Pocar, University of Massachusetts Amherst
- 11:30am** "Supernova axion constraints"  
Ermal Rrapaj, Institute for Nuclear Theory
- 12:00pm** Lunch
- 2:00pm** Discussion: DM EFT & Collider constraints
- 3:30pm** Coffee Break
- 4:30pm** Discussion: DM EFT & Collider constraints (cont.)

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#### **Friday, December 12, 2014**

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|----------------|--|--|
| <b>9:00am</b>  | <b>"UV completion of nuclear response functions"</b>     | Kathryn Zurek, Berkeley Lab                |
| <b>9:30am</b>  | <b>"Composite DM"</b>                                    | Matthew Buckley, Rutgers University        |
| <b>10:00am</b> | <b>"Composite dark matter from lattice field theory"</b> | Enrico Rinaldi, LLNL                       |
| <b>10:30am</b> | <b>Coffee Break</b>                                      |  |
| <b>11:00am</b> | <b>"ADMX"</b>  | Leslie Rosenberg, University of Washington |
| <b>11:30am</b> | <b>Lunch</b>   |  |
| <b>1:30pm</b>  | <b>"Neutron Star Constraints on DM"</b>                  | Sanjay Reddy, Institute for Nuclear Theory |
| <b>2:00pm</b>  | <b>Discussion: Composite DM &amp; Wrap up</b>            |  |
| <b>3:30pm</b>  | <b>Coffee Break</b>                                      |  |
| <b>4:30pm</b>  | <b>Discussion: Composite DM &amp; Wrap up (cont.)</b>    |  |

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Name	Institute	Email	Arrive	Depart
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