







NSD Staff Meeting

Tuesday, 19 February 2019 from 12:00 to 13:00 (US/Pacific)
at LBL-Hill (Building 50 - Auditorium)

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Tuesday, 19 February 2019

- | | |
|---------------|--|
| 12:00 - 12:05 | Announcements 5'  |
| | Speaker: Mateusz Ploskon |
| 12:05 - 12:15 | Safety 10'  |
| | Speaker: Dave Rodgers |
| 12:15 - 12:25 | Diversity, Equity, and Inclusion 10'  |
| | Speakers: Barbara Jacak, Erika Suzuki, Tom Gallant (LBNL), Ernst Sichtermann |
| 12:25 - 13:00 | Science Talk: Nuclear Matter at High Orders from Chiral Effective Field Theory 35'  |
| | <p><i>Based on the symmetries of quantum chromodynamics, chiral effective field theory (EFT) has become the modern approach to nuclear interactions at the low-energy scales of nuclear physics. Nuclear matter is an ideal system for testing these with important consequences for physics ranging from finite nuclei to neutron stars: while the equation of state allows tight constraints on key quantities relevant for neutron stars, recent ab initio calculations of medium-mass to heavy nuclei have demonstrated that realistic saturation properties in symmetric matter are crucial for reproducing experimental binding energies and charge radii.</i></p> <p><i>We report on recent advances in many-body perturbation theory for the equation of state of homogeneous nuclear matter based on chiral nucleon-, three-, and four-nucleon interactions. A novel Monte Carlo framework allows us to push state-of-the-art calculations at zero and finite temperature to high orders in the chiral as well the perturbation expansion. This gives important insights into the rates of convergence of the two expansions including improved theoretical uncertainty estimates. We explore new chiral interactions up to next-to-next-to-next-to-leading order (N3LO) in neutron and symmetric matter with focus on reproducing the empirical saturation point. Finally, we outline how these improved calculations combined with observations such as GW170817 can be used to construct the equation of state up to the densities and temperatures relevant for astrophysical simulations. Direct constraints from lattice quantum chromodynamics for nuclear forces (e.g., by the CalLat collaboration) would be very exciting.</i></p> <p>Speaker: Dr. Christian Drischler (University of California, Berkeley and Lawrence Berkeley National Laboratory)</p> <p>Material: Slides  summary </p> |

Next NSD staff meeting: 5th of March 2019

Notes on NSD meetings

<https://conferences.lbl.gov/category/73/>



Complete schedule until June 2019

BERKELEY LAB
LAWRENCE BERKELEY NATIONAL LABORATORY

U.S. DEPARTMENT OF ENERGY

NSD NUCLEAR SCIENCE DIVISION

RESEARCH PROGRAMS

- Accelerator-Based Low-Energy Research
- Applied Nuclear Physics
- Neutrinos and Nuclear Astrophysics
- Nuclear Theory
- Relativistic Nuclear Collisions

FACILITIES

- 88-Inch Cyclotron
- BASE (Space Radiation Effects Testing) User Facility
- Low Background Facility

PROJECTS

EDUCATION & OUTREACH

PHYSICAL SCIENCES WORKPLACE COMMITTEE

NSD ORGANIZATION

NSD Calendar site

NUCLEAR SCIENCE DIVISION STAFF

NSD NEWSLETTER ARCHIVE

NSD Newsletter April 2018:

- RNC brings supercomputing to heavy ions
- Medical imager photographs 88-inch cyclotron beam, for cancer studies
- From the cockpit to the lab – former USAF test pilot lands at in Berkeley Lab's NSD
- Fragments
- Newsletter notes

SEMINARS

NSD SEMINARS

- NSD Staff Meetings
- HIT: Heavy Ion Tea
- INPA Journal Club
- Nuclear Physics Forum

External Links

- LBL home page
- LBL Physics Division
- LBL Accelerator Technology and Applied Physics Division
- LBL Engineering Division
- DOE Office of Nuclear Physics

Contact: S. Ritterbusch

U.S. DEPARTMENT OF ENERGY
Office of Science

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Meetings

Hide the events in the future (5)

Managers

- Bonifacio, L.
- Ploskon, M.
- Seidl, P.

Files

May 2019

- 28 May NSD Staff Meeting
- 14 May NSD Staff Meeting

April 2019

- 30 Apr NSD Staff Meeting
- 16 Apr NSD Staff Meeting
- 02 Apr NSD Staff Meeting

March 2019

- 19 Mar NSD Staff Meeting
- 05 Mar NSD Staff Meeting

February 2019

- 19 Feb NSD Staff Meeting
- 05 Feb NSD Staff Meeting

January 2019

- 22 Jan NSD Staff Meeting
- 08 Jan NSD Staff Meeting

December 2018

- 18 Dec NSD Staff Meeting
- 04 Dec NSD Staff Meeting

November 2018

- 20 Nov NSD Staff Meeting
- 06 Nov NSD Staff Meeting

There are 4 events in the past. Show them.

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Science talks – available dates:

March 5, 19

April 2, 16, 30

May 14, 28

Upcoming events

TODAY: NSD LDRD 'preview' meeting

Starting at 1pm, 54-130/Pers. Hall

- Short presentations (no more than five slides and no longer than 10 minutes) on ideas for LDRD proposals.
- Initial feedback from Division.

The 2nd LDRD FY20 presentation will take place on Tuesday, March 5, 1:00 p.m., in Bldg. 54-Pers Hall #130.

Upcoming events

<i>What?</i>	<i>Who?</i>	<i>On what?</i>	<i>When?</i>		<i>Where?</i>
Instrumentation Coll.	Bert de Jong (LBNL)	Advancing quantum computing as a platform for scientific discovery in chemical sciences	27-Feb	12:00 PM	50-Audit
Nuclear Theory	J. Chang	TBD	26-Feb	1:00 PM	Swiatecki
Nuclear Theory	M. Gyulassy	TBD	1-Mar	1:00 PM	Swiatecki
NSD Coll	K. Scholberg (Duke U.)	Observation of coherent elastic neutrino-nucleus scattering by COHERENT	13-Mar	10:30 AM	50-Audit
INPA	Jia Liu (Princeton)	Extracting non-Gaussian info from large-scale structure	22-Feb	12:00 PM	50A-5132
HIT	A. Frawley (FSU)	TBD	27-Feb	2:00 PM	70A-3377
HIT	Ziwei Lin (East Carolina U.)	Extending the Bjorken Formula to Beam Energy Scan Energies at RHIC	5-Mar	3:00 PM	70A-3377
NP Forum	Bert de Jong (LBNL)	Advancing quantum computing as a platform for scientific discovery in chemical sciences	20-Feb	11:00 AM	Building 88 2nd floor
RPM	Nathan Lourie (U. Pennsylvania)	Sub-arcminute Galactic Polarimetry with the Next Generation Balloon-borne Large-Aperture Submillimeter Telescope (BLAST-TNG)	19-Feb	4:00 PM	50A-5132
RPM	Masayuki Wada (Princeton)	WIMP Dark Matter Search from Ionization Channel in DarkSide-50	21-Feb	4:00 PM	50A-5132
RPM	Quentin Riffard (LBNL)	TBD	26-Feb	4:00 PM	50A-5132
RPM	Lian Tao Wang (U. Chicago)	TBD	28-Feb	4:00 PM	50A-5132
UCB Nucl. Eng.	A. Persaud (LBNL-ATAP)	Measuring Carbon-in-soil Distribution using an Associate Particle Imaging System	25-Feb	4:00 PM	3105 Etcheverry Hall
UCB Physics Coll. (Cond. Matt. & Material Science)	S. G. Louie (UCB & LBNL)	The Fascinating Quantum World of Atomically Thin 1D & 2D Materials: Symmetry, Interaction and Topological Effects	25-Feb	4:15 PM	1 Le Conte
UCB Physics Coll. (Biophysics)	E. D. Siggia (Rockefeller U.)	Physics/SQB Presents: Exploring Embryonic Patterning with Colonies of Human Embryonic Stem Cells	4-Mar	4:15 PM	1 Le Conte
berkeleyquantum.org	Edoardo Charbon (EPFL)	The role of cryo-CMOS in quantum computers	21-Feb	2:00 PM	B66 Audit

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