

ITAMP News

Harvard-Smithsonian Center for Astrophysics
itamp.harvard.edu

Spring 2018

Workshops, Topical Groups, & Schools

Developing Flexible and Robust Software in Computational Atomic and Molecular Physics

Barry Schneider (NIST), Bob Forrey (Penn State), Nadwalath Balakrishnan (UNLV)
 05/14/2018 to 05/16/2018

Joint ITAMP/UCL workshop: Attosecond and Free Electron Laser Science

Agapi Emmanouilidou (UCL), Paul Corkum (Ottawa), Matthias Kling (MPQ), Jonathan Temnyson (UCL)
 07/02/2018 to 07/04/2018

Few-body and Collective Many-body Behavior with Charge Impurities in Atomic Quantum Gases

Svetlana Kotochigova (NIST/Temple University), Johannes Hecker Denschlag (Ulm University), and Tommaso Calarco (Ulm University) - ICAP Satellite, Sant Feliu de Guixols, Spain
 07/18/2018 to 07/20/2018

ITAMP/Aarhus collaborative workshop: Strongly Interacting Rydberg Atoms

Thomas Pohl (Aarhus), Georg Bruun (Aarhus), Jan Arlt (Aarhus)
 08/13/2018 to 08/17/2018

Quantum Phases of Fermions in Optical Lattices: The Low-Temperature Frontier

Randy Hulet (Rice), Kaden Hazzard (Rice), Daniel Greif (Harvard), Markus Greiner (Harvard)
 10/8/2018 to 10/10/2018

ITAMP/B2 Institute Winter Graduate School on AMO

Physics, "Many-body non-equilibrium quantum matter", University of Arizona- Biosphere 2
 February 2019

2017 workshops, outreach, winter school

During the calendar year 2017, ITAMP organized five workshops, one science outreach to Cambridge middle school students, a Winter School and sponsored an APS conference for undergraduate women in physics (CUWP), which was held at Harvard University. The list of workshops and YouTube presentations can be found at itamp.harvard.edu. The workshop on Quantum Thermodynamics held at ITAMP in November was the first such workshop held in the US.

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The recipient of the ITAMP summer fellowship to a faculty/student team at an underrepresented institution was **Dr. Zineb Felfli** from Clark Atlanta University. While at ITAMP, she worked on the development of a mean field theory of haze muting of spectral lines in exoplanetary atmospheres.

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During his visit to Cambridge in Fall 2017, **Dr. Eric Cornell** (JILA) gave a lecture to students at Cambridge Rindge and Latin High School (CRLS) on Stone Cold Science. His presentation can be found here: https://www.cpsd.us/news/nobel_crls_alum_illuminates_stone_cold_science.

Eric attended CRLS in the 80's.



**SEND YOUR STUDENTS TO THE
ITAMP/B2 INSTITUTE
2019 WINTER SCHOOL!**

www.cfa.harvard.edu/itamp/WinterSchool2019.html

Call for proposals
 Propose workshops, topical groups, ideas
 for the winter schools and requests for
 visits to ITAMP at
itamp.harvard.edu

2019 Postdoctoral Fellowship application will open in
 September 2018.
www.cfa.harvard.edu/itamp/postdoctoral.html

2018 Postdoctoral Fellows



Dr. Nicole Yunger Halpern is recipient of the ITAMP postdoctoral fellowship. Nicole comes to ITAMP from the group of John Preskill at CalTech where she worked on quantum information thermodynamics, an emergent area of quantum thermalization which can scramble quantum information encoded in many-body systems. With Nicole at ITAMP, for the first time, there will be three female postdocs in residence. She will join in September.

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Dr. Tijs Karman is the second recipient of the ITAMP fellowship. Tijs will join ITAMP in October from the group of Gerrit Groenenboom at Radboud University, where he worked on the development and application of quantum scattering for bimolecular collisions at cold temperature. Tijs will bring with him a national fellowship from the Rubicon Foundation which will supplement his ITAMP fellowship.

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Dalgarno Lectures



Prof. Ewine van Dishoeck came in March 26-30 to deliver a set of lectures to students, junior fellows and faculty at the Harvard-Smithsonian. She's a former disciple of Alex Dalgarno. Her first two lectures in classroom setting were on "*Photon-induced chemistry in space*", and "*Water in space: how, where and when?*". She concluded with a third lecture- a colloquium- on "*Molecules from clouds to disks and planets: building on*

Dalgarno's legacy".

At ITAMP, she met with students, postdocs, and faculty and stayed at Alex's old office. All lectures can be found at: "itamp/physics@youtube.com" under playlist "*ITAMP- Dalgarno Lectures*".

Contact the ITAMP Coordinator Naomi Tariri for information and questions at ntariri@cfa.harvard.edu

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To New and Better Things

Richard Schmidt has begun a large research group at MPQ-Garching this Spring; see also below.

Stefan Pabst has joined an AI company in the Bay area called Rational AI.

Our best wishes to and hopes for both.

Latest News



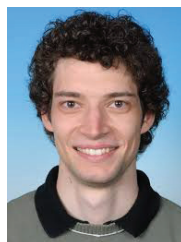
It is with great pleasure that we announce that **Misha Lukin** has been elected to the National Academy of Sciences.

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Rivka Bekenstein is a finalist for the DAMOP Thesis Prize. She will give an invited talk at DAMOP (<http://meetings.aps.org/Meeting/DAMOP18/Session/D03.1>).

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A major experiment/theory effort at Harvard/ITAMP has succeeded in building a large quantum simulator with 51 atoms in optical tweezers. The ITAMP effort was led by Misha Lukin and **Hannes Pichler**. The paper can be found here: <https://www.nature.com/articles/nature24622>

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"*One Atom to Rule Them All: A New Class of Quantum Matter Observed*". In a recent joint theory/experimental effort, the first Rydberg polaron has been realized in a quantum boson gas. The theory was led at ITAMP by **Richard Schmidt**, Hossein Sadeghpour and Eugene Demler in Physics.

<https://www.cfa.harvard.edu/news/2018-03>.

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Long Term Visiting Fellows

Prof. Peter Drummond and **Margaret Reid** - Fall 2018 (Swinburne University of Technology, Australia).

ITAMP continues to offer videos from workshops and the Winter Schools on YouTube. Videos can be found by searching for "[ITAMP/Physics](https://www.youtube.com/ITAMP/Physics)" at [youtube.com](https://www.youtube.com).