

# **New Ideas in Constraining Nuclear Forces**



## **Report of Contributions**

Contribution ID: 1

Type: **not specified**

## **Nuclear forces and structure in nuclear lattice simulations**

*Monday, 4 June 2018 09:40 (40 minutes)*

chair:

**Presenter:** LEE, D. (Michigan State University)

**Session Classification:** Constraining nuclear forces with few- and many-body observables:

Contribution ID: 2

Type: **not specified**

## **Determination of the pion-nucleon low-energy constants**

*Monday, 4 June 2018 10:50 (40 minutes)*

**Presenter:** RUIZ DE ELVIRA, J. (University of Bern)

**Session Classification:** Constraining nuclear forces with few- and many-body observables:

Contribution ID: 3

Type: **not specified**

## **An efficient Monte Carlo framework for nuclear-matter calculations**

*Monday, 4 June 2018 11:30 (40 minutes)*

**Presenter:** DRISCHLER, C. (University of California, Berkeley)

**Session Classification:** Constraining nuclear forces with few- and many-body observables:

Contribution ID: 4

Type: **not specified**

## **Constraints on the nuclear equation of state from neutron star observations**

*Monday, 4 June 2018 14:10 (40 minutes)*

**Presenter:** HOLT, J. W. (Texas A&M)

**Session Classification:** Constraining nuclear forces with few- and many-body observables:

Contribution ID: 9

Type: **not specified**

## **Status and challenges of chiral effective field theory calculations of nuclear and dense matter**

*Tuesday, 5 June 2018 09:00 (40 minutes)*

**Presenter:** SCHWENK, A. (TU Darmstadt)

**Session Classification:** Current limitations of nuclear Hamiltonians

Contribution ID: **10**

Type: **not specified**

## Observables in medium-mass nuclei

*Tuesday, 5 June 2018 09:40 (40 minutes)*

**Presenter:** STROBERG, S. R. (Reed College)

**Session Classification:** Current limitations of nuclear Hamiltonians

Contribution ID: 11

Type: **not specified**

# Uncertainty quantification for nuclear many-body calculations

*Tuesday, 5 June 2018 10:50 (40 minutes)*

**Presenter:** WELLENHOFER, C. (TU Darmstadt)

**Session Classification:** Current limitations of nuclear Hamiltonians



Contribution ID: 12

Type: **not specified**

## How do we handle computationally expensive observables when fitting an interaction?

*Tuesday, 5 June 2018 11:30 (40 minutes)*

**Presenter:** EKSTRÖM, A. (Chalmers University of Technology)

**Session Classification:** Current limitations of nuclear Hamiltonians

Contribution ID: 13

Type: **not specified**

## **From microscopic to effective interactions via Quantum Monte Carlo**

*Tuesday, 5 June 2018 14:10 (40 minutes)*

**Presenter:** GEZERLIS, A. (University of Guelph)

**Session Classification:** Current limitations of nuclear Hamiltonians

Contribution ID: 16

Type: **not specified**

## From light nuclei to neutron stars with chiral dynamics

*Wednesday, 6 June 2018 09:00 (40 minutes)*

**Presenter:** PIARULLI, M. (Argonne National Lab)

**Session Classification:** Improving two- and many-body nuclear forces with novel fitting strategies and higher orders in chiral EFT

Contribution ID: 17

Type: **not specified**

## Chiral nuclear forces at the precision frontier

*Wednesday, 6 June 2018 09:40 (40 minutes)*

**Presenter:** EPELBAUM, E. (Ruhr-University Bochum)

**Session Classification:** Improving two- and many-body nuclear forces with novel fitting strategies and higher orders in chiral EFT

Contribution ID: **18**

Type: **not specified**

## **Symmetry preserving regularization of nuclear forces and currents**

*Wednesday, 6 June 2018 10:50 (40 minutes)*

**Presenter:** KREBS, H. (Ruhr-University Bochum)

**Session Classification:** Improving two- and many-body nuclear forces with novel fitting strategies and higher orders in chiral EFT

Contribution ID: 19

Type: **not specified**

## **Implementation and applications of three-nucleon interactions and nuclear currents**

*Wednesday, 6 June 2018 11:30 (40 minutes)*

**Presenter:** HEBELER, K. (TU Darmstadt)

**Session Classification:** Improving two- and many-body nuclear forces with novel fitting strategies and higher orders in chiral EFT

Contribution ID: 20

Type: **not specified**

## **Different strategies for EFT parameter estimation in the few-nucleon sector**

*Wednesday, 6 June 2018 14:10 (40 minutes)*

**Presenter:** FORSSÉN, C. (Chalmers University of Technology)

**Session Classification:** Improving two- and many-body nuclear forces with novel fitting strategies and higher orders in chiral EFT

Contribution ID: 21

Type: **not specified**

## **Bayesian parameter estimation for chiral interactions: NN sector**

*Wednesday, 6 June 2018 14:50 (40 minutes)*

**Presenter:** WESOŁOWSKI, S. (Salisbury University)

**Session Classification:** Improving two- and many-body nuclear forces with novel fitting strategies and higher orders in chiral EFT



Contribution ID: 23

Type: **not specified**

## What's the issue, and why do we care?

*Thursday, 7 June 2018 09:00 (40 minutes)*

**Presenter:** GRIESSHAMMER, H. (George Washington University)

**Session Classification:** Power counting: Beyond Weinberg (?)

Contribution ID: 24

Type: **not specified**

## Counting powers of what? Where?

*Thursday, 7 June 2018 09:40 (40 minutes)*

**Presenter:** VAN KOLCK, U. (Institut de Physique Nucleaire d'Orsay)

**Session Classification:** Power counting: Beyond Weinberg (?)

Contribution ID: 25

Type: **not specified**

## Perturbative NN scattering

*Thursday, 7 June 2018 10:50 (40 minutes)*

**Presenter:** LONG, B. (Sichuan University)

**Session Classification:** Power counting: Beyond Weinberg (?)

Contribution ID: 26

Type: **not specified**

## Nuclear physics around the unitarity limit

*Thursday, 7 June 2018 11:30 (40 minutes)*

**Presenter:** KÖNIG, S. (TU Darmstadt)

**Session Classification:** Power counting: Beyond Weinberg (?)

Contribution ID: 27

Type: **not specified**

## Examining chiral EFT potentials with Lepage plots

*Thursday, 7 June 2018 14:10 (40 minutes)*

**Presenter:** YANG, C.-J. (George Washington University)

**Session Classification:** Power counting: Beyond Weinberg (?)

Contribution ID: 28

Type: **not specified**

## **Perturbative vs non-perturbative nuclear EFT: A potential compromise?**

*Thursday, 7 June 2018 14:50 (40 minutes)*

**Presenter:** VALDERRAMA, M. P. (Beihang University)

**Session Classification:** Power counting: Beyond Weinberg (?)

Contribution ID: 30

Type: **not specified**

## Nuclear and hypernuclear forces from lattice QCD

*Friday, 8 June 2018 09:00 (40 minutes)*

**Presenter:** DAVOUDI, Z. (University of Maryland, College Park)

**Session Classification:** Constraining nuclear forces from lattice QCD calculations

Contribution ID: 31

Type: **not specified**

## Baryon interactions from lattice QCD

*Friday, 8 June 2018 09:40 (40 minutes)*

**Presenter:** SASAKI, K. (YITP, Kyoto University)

**Session Classification:** Constraining nuclear forces from lattice QCD calculations



Contribution ID: 32

Type: **not specified**

## Pionless EFT for medium-mass nuclei

*Friday, 8 June 2018 10:50 (40 minutes)*

**Presenter:** ROGGERO, A. (Los Alamos National Lab)

**Session Classification:** Constraining nuclear forces from lattice QCD calculations

Contribution ID: 33

Type: **not specified**

## **SCGF studies on nuclei based on novel chiral and lattice QCD nuclear forces**

*Friday, 8 June 2018 11:30 (40 minutes)*

**Presenter:** BARBIERI, C. (University of Surrey)

**Session Classification:** Constraining nuclear forces from lattice QCD calculations

Contribution ID: 34

Type: **not specified**

## Quantum Monte Carlo calculations of properties of nuclei with chiral interactions

*Tuesday, 5 June 2018 14:50 (40 minutes)*

**Presenter:** GANDOLFI, S. (LANL)

**Session Classification:** Current limitations of nuclear Hamiltonians