

# **PAINT2024 - Workshop on Progress in Ab Initio Nuclear Theory**



## **Report of Contributions**

Contribution ID: 1

Type: **not specified**

## Introduction

*Tuesday, 27 February 2024 09:15 (15 minutes)*

**Presenter:** NAVRATIL, Petr

**Session Classification:** Morning: Talks

Contribution ID: 2

Type: **not specified**

## **Precision theory for charge radii of light nuclei**

*Tuesday, 27 February 2024 09:30 (30 minutes)*

**Presenter:** EPELBAUM, Evgeny

**Session Classification:** Morning: Talks

Contribution ID: 3

Type: **not specified**

# Three-Nucleon Forces with Symmetry Preserving Regulator

*Tuesday, 27 February 2024 10:00 (30 minutes)*

**Presenter:** KREBS, Herman

**Session Classification:** Morning: Talks

Contribution ID: 4

Type: **not specified**

## **New Algorithms for the Nuclear Many-Body Problem**

*Tuesday, 27 February 2024 12:00 (30 minutes)*

**Presenter:** LEE, Dean

**Session Classification:** Morning: Talks

Contribution ID: 5

Type: **not specified**

# **Bayesian uncertainty quantification in ab initio nuclear theory**

*Friday, 1 March 2024 10:00 (30 minutes)*

**Presenter:** SVENSSON, Isak

**Session Classification:** Morning: Talks

Contribution ID: 6

Type: **not specified**

## **Charged particles and resonances in finite volume**

*Tuesday, 27 February 2024 11:30 (30 minutes)*

**Presenter:** KOENIG, Sebastian

**Session Classification:** Morning: Talks

Contribution ID: 7

Type: **not specified**

## **What's missing? An investigation of ${}^3\text{He}(\alpha,\gamma){}^7\text{Be}$ radiative capture**

*Tuesday, 27 February 2024 14:00 (30 minutes)*

**Presenter:** ATKINSON, Mack

**Session Classification:** Afternoon: Talks



Contribution ID: 8

Type: **not specified**

## **Islands of inversion and other challenges to the no-core shell model**

*Tuesday, 27 February 2024 14:30 (30 minutes)*

**Presenter:** JOHNSON, Calvin

**Session Classification:** Afternoon: Talks

Contribution ID: 9

Type: **not specified**

## **Intruder structure, shape coexistence, and configuration mixing from an ab initio perspective**

*Tuesday, 27 February 2024 15:00 (30 minutes)*

**Presenter:** CAPRIO, Mark

**Session Classification:** Afternoon: Talks

Contribution ID: **10**

Type: **not specified**

## **Ab initio investigation of ${}^7\text{Li}(p, \gamma){}^8\text{Be}$ and ${}^7\text{Li}(p, e^+ e^-){}^8\text{Be}$ processes**

*Tuesday, 27 February 2024 16:00 (30 minutes)*

**Presenter:** GYSBERS, Peter

**Session Classification:** Afternoon: Talks

Contribution ID: 11

Type: **not specified**

## **Collective and single particle structure of $^{12}\text{Be}$ negative parity spectrum**

*Tuesday, 27 February 2024 16:30 (30 minutes)*

**Presenter:** MCCOY, Anna

**Session Classification:** Afternoon: Talks

Contribution ID: 12

Type: **not specified**

## Exotic pairing in heavy nuclei

*Friday, 1 March 2024 10:30 (30 minutes)*

**Presenter:** PALKANOGLU, Georgios

**Session Classification:** Morning: Talks

Contribution ID: 13

Type: **not specified**

## **Coupling nuclear structure and relativistic hydrodynamic calculations: collectivity in small systems**

*Friday, 1 March 2024 11:30 (30 minutes)*

**Presenter:** BALLY, Benjamin

**Session Classification:** Morning: Talks

Contribution ID: 14

Type: **not specified**

## **Neutron-rich nuclei and neutron skins from chiral low-resolution interactions**

*Tuesday, 27 February 2024 11:00 (30 minutes)*

**Presenter:** ARTHUIS, Pierre

**Session Classification:** Morning: Talks

Contribution ID: 15

Type: **not specified**

## **A decisional step for Variational Monte Carlo: optimizing neural quantum states with decision geometry**

*Friday, 1 March 2024 09:30 (30 minutes)*

**Presenter:** DRISSI, Mehdi

**Session Classification:** Morning: Talks



Contribution ID: 16

Type: **not specified**

## **Nuclei and nuclear matter with neural-network quantum states**

*Wednesday, 28 February 2024 12:00 (30 minutes)*

**Presenter:** LOVATO, Alessandro

**Session Classification:** Morning: Talks

Contribution ID: 17

Type: **not specified**

## **Improved medium-mass nuclear structure and responses with the IMSRG**

*Wednesday, 28 February 2024 09:00 (30 minutes)*

**Presenter:** HEINZ, Matthias

**Session Classification:** Morning: Talks

Contribution ID: **18**

Type: **not specified**

## **Factorized approximations of IMSRG(3)**

*Wednesday, 28 February 2024 09:30 (30 minutes)*

**Presenter:** STROBERG, Ragnar

**Session Classification:** Morning: Talks

Contribution ID: 20

Type: **not specified**

## **New Extensions and Applications of the IMSRG**

*Wednesday, 28 February 2024 10:00 (30 minutes)*

**Presenter:** HERGERT, Heiko

**Session Classification:** Morning: Talks

Contribution ID: 21

Type: **not specified**

## Collectivity in neutron-rich neon isotopes

*Friday, 1 March 2024 12:00 (30 minutes)*

**Presenter:** HAGEN, Gaute

**Session Classification:** Morning: Talks

Contribution ID: 22

Type: **not specified**

## **Reach and opportunities for Green's function methods in nuclear physics: optical potentials, infinite matter and diagrammatic Monte Carlo**

*Wednesday, 28 February 2024 11:00 (30 minutes)*

**Presenter:** BARBIERI, Carlo

**Session Classification:** Morning: Talks

Contribution ID: 23

Type: **not specified**

## **Electric dipole polarizability in medium-mass nuclei**

*Wednesday, 28 February 2024 15:00 (30 minutes)*

**Presenter:** BONAITI, Francesca

**Session Classification:** Afternoon: Talks

Contribution ID: 24

Type: **not specified**

## The magnetic dipole transition in $^{48}\text{Ca}$

*Wednesday, 28 February 2024 16:00 (30 minutes)*

**Presenter:** PAPENBROCK, Thomas

**Session Classification:** Afternoon: Talks



Contribution ID: 25

Type: **not specified**

## **Ab initio spectroscopy from the valence-space density matrix renormalization group**

*Wednesday, 28 February 2024 16:30 (30 minutes)*

**Presenter:** TICHAI, Alex

**Session Classification:** Afternoon: Talks

Contribution ID: 26

Type: **not specified**

## **The polarization propagator in the self-consistent Gorkov-Green's function method: perturbation theory**

**Presenter:** STELLIN, Gianluca

**Session Classification:** Afternoon: Talks

Contribution ID: 27

Type: **not specified**

# Precision Calculations of p-Shell Hypernuclei and Beyond

*Thursday, 29 February 2024 09:00 (30 minutes)*

**Presenter:** KNÖLL, Marco

**Session Classification:** Morning: Talks

Contribution ID: 28

Type: **not specified**

## **Evolution of single-particle structure in neutron-rich beryllium isotopes**

*Thursday, 29 February 2024 09:30 (30 minutes)*

**Presenter:** FASANO, Patrick

**Session Classification:** Morning: Talks

Contribution ID: 29

Type: **not specified**

## **Ab initio theory towards reliable neutrinoless double beta decay nuclear matrix elements**

*Thursday, 29 February 2024 10:00 (30 minutes)*

**Presenter:** BELLEY, Antoine

**Session Classification:** Morning: Talks

Contribution ID: 30

Type: **not specified**

## **Ab initio calculations for muon capture to probe neutrinoless double-beta decay**

*Thursday, 29 February 2024 12:00 (30 minutes)*

**Presenter:** JOKINIEMI, Lotta

**Session Classification:** Morning: Talks

Contribution ID: 31

Type: **not specified**

## **New opportunities for nuclear structure calculations for BSM physics**

*Thursday, 29 February 2024 11:00 (30 minutes)*

**Presenter:** GLICK-MAGID, Ayala

**Session Classification:** Morning: Talks

Contribution ID: 32

Type: **not specified**

## **Electroweak radiative corrections to nuclear Fermi transitions and CKM unitarity**

*Thursday, 29 February 2024 11:30 (30 minutes)*

**Presenter:** GENNARI, Michael

**Session Classification:** Morning: Talks



Contribution ID: 33

Type: **not specified**

## **Nuclear physics for the precise extraction of $V_{ud}$**

*Thursday, 29 February 2024 14:00 (1 hour)*

**Presenter:** SENG, Chien-Yeah

**Session Classification:** Colloquium

Contribution ID: 34

Type: **not specified**

## **Total muon capture rates from the ab initio no-core shell model**

*Wednesday, 28 February 2024 14:00 (10 minutes)*

**Presenter:** ARAUJO NAJERA, Diego

**Session Classification:** Poster Jamboree

Contribution ID: **36**

Type: **not specified**

## **Two-body currents at finite momentum transfer**

*Wednesday, 28 February 2024 14:20 (10 minutes)*

**Presenter:** BRASE, Catharina

**Session Classification:** Poster Jamboree

Contribution ID: 37

Type: **not specified**

## Diagrammatic Monte Carlo for Atomic Nuclei

*Wednesday, 28 February 2024 14:30 (10 minutes)*

**Presenter:** BROLLI, Stefano

**Session Classification:** Poster Jamboree

Contribution ID: 38

Type: **not specified**

## **Application of eigenvector continuation to the pairing Hamiltonian and nuclear many-body problems**

*Wednesday, 28 February 2024 14:40 (10 minutes)*

**Presenter:** COMPANYS, Margarida

**Session Classification:** Poster Jamboree

Contribution ID: 39

Type: **not specified**

## **Singly open-shell nuclei via Bogoliubov coupled cluster theory**

*Wednesday, 28 February 2024 14:50 (10 minutes)*

**Presenter:** DEMOL, Pepijn

**Session Classification:** Poster Jamboree

Contribution ID: 40

Type: **not specified**

## **Transition sum rules in the no-core shell model**

*Thursday, 29 February 2024 15:30 (10 minutes)*

**Presenter:** FRYE, Hayden

**Session Classification:** Poster Jamboree

Contribution ID: 41

Type: **not specified**

## **Precision Study of Charge Radii for Boron Isotopes**

*Thursday, 29 February 2024 15:40 (10 minutes)*

**Presenter:** GESSER, Tobias

**Session Classification:** Poster Jamboree



Contribution ID: 42

Type: **not specified**

## **$^7\text{Li}$ in the no-core shell model with continuum framework with coupling of mass partitions**

*Thursday, 29 February 2024 15:50 (10 minutes)*

**Presenter:** HERKO, Jakub

**Session Classification:** Poster Jamboree

Contribution ID: 43

Type: **not specified**

## **Consistent Description of Collective Excitations in the In-Medium (S)RPA**

*Thursday, 29 February 2024 16:00 (10 minutes)*

**Presenter:** MULLER, Michelle

**Session Classification:** Poster Jamboree

Contribution ID: 44

Type: **not specified**

## **Deformed natural orbitals for ab initio calculations**

*Thursday, 29 February 2024 16:10 (10 minutes)*

**Presenter:** SCALES, Alberto

**Session Classification:** Poster Jamboree

Contribution ID: 45

Type: **not specified**

## **Perturbative computations of nucleon-nucleon scattering observables using chiral EFT up to N3LO**

*Thursday, 29 February 2024 16:20 (10 minutes)*

**Presenter:** THIM, Oliver

**Session Classification:** Poster Jamboree

Contribution ID: 46

Type: **not specified**

## **Application of Scaled Natural Orbitals to Radii and E2 Observables in the NCSM**

*Thursday, 29 February 2024 16:30 (10 minutes)*

**Presenter:** WAGNER, Lisa

**Session Classification:** Poster Jamboree

Contribution ID: 47

Type: **not specified**

## **Non-scalar Extensions and Applications of the Multi-Reference IM-SRG**

*Thursday, 29 February 2024 16:40 (10 minutes)*

**Presenter:** WENZ, Cedric

**Session Classification:** Poster Jamboree

Contribution ID: 48

Type: **not specified**

## **G-Equivariant Architectures for Many body Systems**

*Thursday, 29 February 2024 16:50 (10 minutes)*

**Presenter:** MUNOZ, Jose

**Session Classification:** Poster Jamboree

Contribution ID: 49

Type: **not specified**

## **Ab initio description of monopole resonances in light- and medium-mass nuclei**

*Tuesday, 27 February 2024 17:00 (30 minutes)*

**Presenter:** PORRO, Andrea

**Session Classification:** Afternoon: Talks



Contribution ID: 50

Type: **not specified**

## Welcome

*Tuesday, 27 February 2024 09:00 (15 minutes)*

**Presenter:** SMITH, Nigel (TRIUMF)

**Session Classification:** Morning: Talks

Contribution ID: 51

Type: **not specified**

## **The polarization propagator in the self-consistent Gorkov-Green's function method: perturbation theory**

*Wednesday, 28 February 2024 11:30 (30 minutes)*

**Presenter:** STELLIN, Gianluca

**Session Classification:** Morning: Talks