

**PAINT2025 - Workshop on
Progress in Ab Initio Nuclear
Theory**



Report of Contributions

Contribution ID: 1

Type: **not specified**

Exploring Strong Interactions in the Universe

Thursday, 27 February 2025 14:00 (1 hour)

Presenter: SCHWENK, Achim

Session Classification: Colloquium

Contribution ID: 2

Type: **not specified**

Introduction

Tuesday, 25 February 2025 09:00 (30 minutes)

Presenter: NAVRATIL, Petr

Session Classification: Morning Talks

Contribution ID: 3

Type: **not specified**

Chiral nuclear interactions: New developments

Tuesday, 25 February 2025 09:30 (30 minutes)

Presenter: EPELBAUM, Evgeny

Session Classification: Morning Talks

Contribution ID: 4

Type: **not specified**

Chiral interactions with gradient flow regulator

Tuesday, 25 February 2025 10:00 (30 minutes)

Presenter: KREBS, Hermann

Session Classification: Morning Talks

Contribution ID: 5

Type: **not specified**

N3LO_Texas —Towards more accurate chiral interactions

Tuesday, 25 February 2025 11:00 (30 minutes)

Presenter: HAGEN, Gaute

Session Classification: Morning Talks

Contribution ID: 6

Type: **not specified**

Explicit Estimation of Truncation Uncertainties in Chiral EFT

Tuesday, 25 February 2025 11:30 (30 minutes)

Presenter: HEIHOFF, Sven

Session Classification: Morning Talks

Contribution ID: 7

Type: **not specified**

Inferring three-nucleon couplings from multi-messenger neutron-star observations

Tuesday, 25 February 2025 12:00 (30 minutes)

Presenter: SVENSSON, Isak

Session Classification: Morning Talks

Contribution ID: 8

Type: **not specified**

An ab initio framework for the modelling of electroweak processes in light nuclei

Tuesday, 25 February 2025 14:00 (30 minutes)

Presenter: GENNARI, Michael

Session Classification: Afternoon Talks

Contribution ID: 9

Type: **not specified**

Ab initio nuclear corrections to muonic atoms: extracting nuclear radii from precision spectroscopy

Tuesday, 25 February 2025 14:30 (30 minutes)

Presenter: DRISSI, Mehdi

Session Classification: Afternoon Talks

Contribution ID: **10**

Type: **not specified**

Extending the reach of the no-core shell model

Tuesday, 25 February 2025 15:00 (30 minutes)

Presenter: JOHNSON, Calvin

Session Classification: Afternoon Talks

Contribution ID: 11

Type: **not specified**

Proton-neutron deformation, triaxiality, and subshell structure ab initio

Tuesday, 25 February 2025 16:00 (30 minutes)

Presenter: CAPRIO, Mark

Session Classification: Afternoon Talks

Contribution ID: 12

Type: **not specified**

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

Tuesday, 25 February 2025 16:30 (30 minutes)

Presenter: HERKO, Jakub

Session Classification: Afternoon Talks

Contribution ID: 13

Type: **not specified**

Aspects of Four-Body Systems in Contact EFT

Tuesday, 25 February 2025 17:00 (30 minutes)

Presenter: LIN, Xincheng

Session Classification: Afternoon Talks

Contribution ID: 14

Type: **not specified**

Update on IMSRG Developments

Wednesday, 26 February 2025 09:00 (30 minutes)

Presenter: HERGERT, Heiko

Session Classification: Morning Talks

Contribution ID: 15

Type: **not specified**

Explorations with the In-Medium No-core Shell Model

Wednesday, 26 February 2025 09:30 (30 minutes)

Presenter: GYSBERS, Peter

Session Classification: Morning Talks

Contribution ID: 16

Type: **not specified**

Symmetry breaking: spurious and spontaneous

Wednesday, 26 February 2025 10:00 (30 minutes)

Presenter: STROBERG, Ragnar

Session Classification: Morning Talks

Contribution ID: 17

Type: **not specified**

Dawn of nuclear clock in the search of new physics: prospects for nuclear physics

Presenter: GAZIT, Doron

Session Classification: Morning Talks

Contribution ID: **18**

Type: **not specified**

Recent advances in precise forbidden β -decays for BSM searches

Wednesday, 26 February 2025 11:00 (30 minutes)

Presenter: GLICK-MAGID, Ayala

Session Classification: Morning Talks

Contribution ID: 19

Type: **not specified**

Quantifying and reducing uncertainties in ab initio calculations for new physics studies

Wednesday, 26 February 2025 11:30 (30 minutes)

Presenter: HEINZ, Matthias

Session Classification: Morning Talks

Contribution ID: 20

Type: **not specified**

Enhancing NCSM Calculations via Artificial Neural Networks

Wednesday, 26 February 2025 15:00 (30 minutes)

Presenter: ROTH, Robert

Session Classification: Afternoon Talks

Contribution ID: 21

Type: **not specified**

Ab initio computations of deformed nuclei

Wednesday, 26 February 2025 16:00 (30 minutes)

Presenter: PAPENBROCK, Thomas

Session Classification: Afternoon Talks

Contribution ID: 22

Type: **not specified**

Exploring nuclear collectivity within the IMSRG

Wednesday, 26 February 2025 16:30 (30 minutes)

Presenter: PORRO, Andrea

Session Classification: Afternoon Talks

Contribution ID: 23

Type: **not specified**

Capturing many-body correlations at polynomial cost

Presenter: SCALES, Alberto

Session Classification: Afternoon Talks

Contribution ID: 24

Type: **not specified**

Towards ab initio calculations for nucleosynthesis

Thursday, 27 February 2025 09:00 (30 minutes)

Presenter: MUMPOWER, Matthew

Session Classification: Morning Talks

Contribution ID: 25

Type: **not specified**

Ab initio nuclear mass predictions at $N=126$ and the third r-process abundance peak

Thursday, 27 February 2025 09:30 (30 minutes)

Presenter: VASSH, Nicole

Session Classification: Morning Talks

Contribution ID: 26

Type: **not specified**

Radiative Corrections for Superalowed Beta Decays Transition Densities with Coupled-Cluster Theory

Thursday, 27 February 2025 10:00 (30 minutes)

Presenter: NOVARIO, Sam

Session Classification: Morning Talks

Contribution ID: 27

Type: **not specified**

Diagrammatic Monte Carlo at T=0 and recent results with SCGF

Thursday, 27 February 2025 11:00 (30 minutes)

Presenter: BARBIERI, Carlo

Session Classification: Morning Talks

Contribution ID: 28

Type: **not specified**

Evidence for multimodal superfluidity of neutrons

Thursday, 27 February 2025 11:30 (30 minutes)

Presenter: LEE, Dean

Session Classification: Morning Talks

Contribution ID: 29

Type: **not specified**

Computing nuclear responses in time-dependent coupled-cluster theory

Thursday, 27 February 2025 12:00 (30 minutes)

Presenter: BONAITI, Francesca

Session Classification: Morning Talks

Contribution ID: **30**

Type: **not specified**

Putting the subleading three-nucleon force to use

Friday, 28 February 2025 09:30 (30 minutes)

Presenter: PALKANOGLU, Georgios

Session Classification: Morning Talks

Contribution ID: 31

Type: **not specified**

Structure and electric dipole response of open-shell nuclei from coupled-cluster theory

Friday, 28 February 2025 10:00 (30 minutes)

Presenter: MARINO, Francesco

Session Classification: Morning Talks

Contribution ID: 32

Type: **not specified**

Corrections to neutrinoless double-beta decay evaluated up to N2LO

Friday, 28 February 2025 10:30 (30 minutes)

Presenter: JOKINIEMI, Lotta

Session Classification: Morning Talks

Contribution ID: 33

Type: **not specified**

Attention everyone! I have gone completely BANNANE!

Friday, 28 February 2025 11:30 (30 minutes)

Primary author: BELLEY, Antoine

Presenter: BELLEY, Antoine

Session Classification: Morning Talks

Contribution ID: 34

Type: **not specified**

Frontiers in Statistical Methods for Nuclear Physics

Friday, 28 February 2025 12:30 (30 minutes)

Presenter: FURNSTAHL, Richard

Session Classification: Morning Talks

Contribution ID: 35

Type: **not specified**

Multi-reference perturbation theory for open-shell nuclei

Wednesday, 26 February 2025 17:00 (30 minutes)

Presenter: FROSINI, Mikael

Session Classification: Afternoon Talks

Contribution ID: 36

Type: **not specified**

Computing nuclear responses in time-dependent coupled-cluster theory

Presenter: BONAITI, Francesca

Session Classification: Afternoon Talks

Contribution ID: 37

Type: **not specified**

A new class of three-nucleon forces in Chiral EFT

Wednesday, 26 February 2025 12:00 (30 minutes)

Presenter: DEKENS, Wouter

Session Classification: Morning Talks

Contribution ID: **38**

Type: **not specified**

TBA

Tuesday, 25 February 2025 12:30 (30 minutes)

Presenter: MCCOY, Anna

Session Classification: Morning Talks

Contribution ID: 39

Type: **not specified**

Capturing many-body correlations at polynomial cost

Thursday, 27 February 2025 12:30 (30 minutes)

Presenter: SCALES, Alberto

Session Classification: Morning Talks

Contribution ID: 40

Type: **not specified**

Tensor-factorized Bogoliubov many-body perturbation theory

Friday, 28 February 2025 12:00 (30 minutes)

Presenter: ZUREK, Lars

Session Classification: Morning Talks

Contribution ID: 41

Type: **not specified**

Exploring new chiral interactions at N2LO and N3LO

Wednesday, 26 February 2025 14:00 (10 minutes)

Presenter: VERNIK, Urban

Session Classification: Poster Jamboree

Contribution ID: 42

Type: **not specified**

Uncertainty quantification with low-resolution nuclear interactions

Wednesday, 26 February 2025 14:10 (10 minutes)

Presenter: PLIES, Tom

Session Classification: Poster Jamboree

Contribution ID: 43

Type: **not specified**

Precision NCSM Calculations of Charge Radii

Wednesday, 26 February 2025 14:20 (10 minutes)

Presenter: GESSER, Tobias

Session Classification: Poster Jamboree

Contribution ID: 44

Type: **not specified**

NCSM and Neural Networks for M3 Transition Strength in 10-B

Wednesday, 26 February 2025 14:30 (10 minutes)

Presenter: WAGNER, Lisa

Session Classification: Poster Jamboree

Contribution ID: 45

Type: **not specified**

Many-body emulators for nuclear structure

Wednesday, 26 February 2025 14:40 (10 minutes)

Presenter: COMPANYS, Margarida

Session Classification: Poster Jamboree

Contribution ID: 46

Type: **not specified**

Two-body currents at finite momentum transfer and applications to M1 transitions

Thursday, 27 February 2025 15:30 (10 minutes)

Presenter: BRASE, Catharina

Session Classification: Poster Jamboree

Contribution ID: 47

Type: **not specified**

Transitions in a proton-neutron shell model approximation

Thursday, 27 February 2025 15:40 (10 minutes)

Presenter: FRYE, Hayden

Session Classification: Poster Jamboree

Contribution ID: 48

Type: **not specified**

Perturbative treatment of non-local operators in quantum Monte Carlo

Thursday, 27 February 2025 15:50 (10 minutes)

Presenter: CURRY, Ryan

Session Classification: Poster Jamboree

Contribution ID: 49

Type: **not specified**

Collective Excitations in the In-Medium (S)RPA

Thursday, 27 February 2025 16:00 (10 minutes)

Presenter: MUELLER, Michelle

Session Classification: Poster Jamboree

Contribution ID: 50

Type: **not specified**

Active-Space Decoupling in the Multi-Reference IM-SRG

Thursday, 27 February 2025 16:10 (10 minutes)

Presenter: WENZ, Cedric

Session Classification: Poster Jamboree

Contribution ID: 51

Type: **not specified**

Ab initio nuclear theory calculations at neutron number $N=126$ change predictions for heavy element production in neutron star mergers

Thursday, 27 February 2025 16:20 (10 minutes)

Presenter: LARIVIERE, Maude

Session Classification: Poster Jamboree

Contribution ID: 52

Type: **not specified**

Equation of state and Fermi liquid properties of dense matter based on chiral EFT interactions

Thursday, 27 February 2025 16:30 (10 minutes)

Presenter: ALP, Faruk

Session Classification: Poster Jamboree

Contribution ID: 53

Type: **not specified**

Leveraging the cost multi-reference methods for the nuclear many-body problem

Wednesday, 26 February 2025 14:50 (10 minutes)

Presenter: BOFOS, Stavros

Session Classification: Poster Jamboree

Contribution ID: 54

Type: **not specified**

What is there inside a BANNANE: ML Tools for Global Emulation

Thursday, 27 February 2025 16:40 (10 minutes)

Presenter: MUNOZ, Jose

Session Classification: Poster Jamboree

Contribution ID: 55

Type: **not specified**

Sterile and Heavy Neutrino Contributions to Neutrinoless Double-Beta Decay

Thursday, 27 February 2025 16:50 (10 minutes)

Presenter: SHICKELE, Taiki

Session Classification: Poster Jamboree

Contribution ID: 56

Type: **not specified**

<https://docs.google.com/spreadsheets/d/1H1zuj9reo9Vwgz5p-pA3zD0KHWfdK6oXKns1dLOVHx8/edit?usp=sharing>

Session Classification: Tour of TRIUMF experimental facilities (optional, first come first serve) - sign up at <https://docs.google.com/spreadsheets/d/1H1zuj9reo9Vwgz5p-pA3zD0KHWfdK6oXKns1dLOVHx8/edit?usp=sharing>