PARALLEL SESSIONS

DURATION OF PRESENTATIONS:

- **Presenter's name in bold face**: 20+5 mins
- Contributed: 15+4 mins

ROOM ASSIGNED TO SESSION – see Programme Plenary-Parallel sessions

ABSTRACTS online at: https://fb22-caen.sciencesconf.org/resource/page/id/2

Few-body aspects of atomic and molecular physics [FB_A&M]

Session 1 Chair: R. Kezerashvili

J-P. Karr Accurate solutions of the three-body Coulomb problem, and applications to molecular QED

- E. Kolganova Van der Waals three-body systems, potentialities for Efimov state observations
- Ultracold three-body rare gas atomic clusters A. Korobitsin
- Three-electron bound states in conventional superconductors A. Sanayei
- Analytic model of a multi-electron atom O. Skoromnik
- Energy spectra of excitons in square quantum wells S. Yakovlev

Session 2 Chair: A. Cassimi

A. Mery Fragmentation dynamics of atomic and molecular dimers

- Electron impact ionization of molecules for different momentum transfers L.U. Ancarani

- Discrete scaling and scattering properties from atom-dimer collision L. Tomio
- Formation of few-electron complexes H. Klar
- Session 3 Chair: Y. Nagashima

A. Browaeys Experimental many-body physics using arrays of individual atoms

L. Liu Building single molecules - collisions and reactions of two atoms

- Low-dimensional few-body processes in confined geometry of atomic and hybrid atom-ion traps *V. Melezhik*

- Three two-species fermions with contact interactions A. Malykh

Session 4 <u>Chair: E. Kolganova</u>

B. Zhu Exploring few- and many-body physics with an ultracold Bose-Fermi mixture of a large mass imbalance

- Probing three-body collisions induced by a charge impurity in an ultracold gas *H. da Silva Jr*
- Few-body interactions in a cold Rydberg gas *P. Cheinet*
- Potential splitting approach for atomic and molecular systems E. Yarevsky

Session 5	<u>Chair: A. Kievsky</u>
M. Safronova	Relativistic high-precision methodologies for atomic calculations
Y. Nagashima	Positronium negative ions: the simplest three body state composed of a positron
	and two electrons

- A three-body system in two dimensions M. Zimmermann

- Trions in three-, two- and one-dimensional materials R. Kezerashvili

Hadron physics and related high-energy physics [FB_Hadron]

T. Peña Relativity in few-hadron systems: analysis of baryon electromagnetic transition form factors in the covariant spectator theory

- Masses and structure of heavy quarkonia and heavy-light mesons in a relativistic quark model in Minkowski space *A. Stadler*

- On the inversion of the Nakanishi integral representation for relativistic bound state problems in Minkowski space *T. Frederico*
- Relativistic effects in non-relativistic calculations of electroweak cross sections G. Orlandini
- Bethe-Salpeter approach to three-body bound states with zero-range interaction *E. Ydrefors*
- Relativistic Faddeev calculation for N-d scattering with Kharkov potential H. Kamada

Session 2 <u>Chair: Yuanning Gao</u>

H.-C. Kim Excited Omega_cs as heavy pentaquarks

- Pion-cloud contribution to the N $\rightarrow \Delta$ transition form factors ~ J.-H. Jung

- Pion effects in N and Δ masses and strong form factors ~ W. Plessas

- Mesons studies with a contact interaction M.A. Bedolla

Session	3	Chair:	Т.	Peña
	-			

C. Lorcé The origin of the nucleon mass

- Energy-momentum tensor for unpolarized proton target A. Trawiński
- The pion as a tool for discovering new physics L. Doria
- The pseudoscalar glueball puzzle Q. Zhao
- Light hadron spectroscopy at BESIII F. De Mori
- Meson-baryon scattering in extend-on-mass-shell scheme at O(p³) J. Lu

Session 4. <u>Chair: W. Plessas</u>

M. Doering Baryon resonances with dynamical coupled channels theory

- Narrow resonance N*(1685) and eta photoproduction J.M. Suh
- Description of the Zc exotic states in a quark model coupled-channels calculation F. Fernandez
- \$\pi J/\psi-D\bar{D}^\ast\$ potential described by the quark exchange diagram Y. Yamaguchi
- Exotic quantum states for charmed baryons at finite temperature P. Zhuang

- Few-body methods and results for hadrons in-medium Y. Liu

Session 5 <u>Chair: A. Valcarce</u>

G. Montaña A meson-baryon molecular interpretation for some Ω_c^0 excited states

- Hidden-charm and bottom meson-baryon molecules coupled with five-quark states A. Giachino

- Threshold effects and the line shape of the X(3872) in EFT M. Schmidt
- Study of dibaryon resonances via coherent double neutral-meson scattering photoproduction from the deuteron *T. Ishikawa*

Session 6	<u>Chair: H. Moutarde</u>
M. Defurne	Accessing the generalized parton distributions in the valence region at Jefferson Lab
C. Mezrag	Parton distribution amplitudes: revealing diquarks in the proton and Roper
	resonance
W. de Paula	Pion valence momentum distributions: response to massive effective gluons

- Poincare' covariant light-front spectral function and transverse momentum distributions *E. Pace*

<u>Strange and exotic matter including hypernuclear physics</u> [FB_Exotic]

Session 1	Chair: G. Salme	

E. Liénard Probing the Standard Model with beta-decay experiments

- Zero-range EFT for resonant wino dark matter *E. Braaten*

- Time-reversal violation in two and three nucleon systems A. Gnech

- Few nucleon experiments in the hadronic weak interaction J. Fry

Session 2.	<u>Chair: J. Haidenbauer</u>
Ch. Rappold	Hypernuclear spectroscopy with heavy ion beams: the present status and the
	perspective

- Hyperon and hypernuclear physics with PANDA at FAIR K. Schoenning
- Production of hypernuclei and strange particles in spallation reactions at a few GeV using an intranuclear cascade approach *J.-Ch. David*
- Search for the eta-mesic helium in proton-deuteron and deuteron-deuteron reactions M. Skurzok
- Studies of the \$\bar{K}NN\$ bound state via the exclusive analysis of the in-flight (K^{-}, n) reaction a J-PARC *T. Yamaga*
- Quasi-bound state in the \$\bar{K}NNN\$ system N. Shevchenko

Session 3. <u>Chair: J. McGovern</u>

- J. Haidenbauer Baryon-baryon interaction in chiral EFT
- B\$_\Lambda\$(\$^5_\Lambda\$He) from short range effective theory L. Contessi
- Construction of a local Kbar N-pi Sigma-pi Lambda potential and composition of the Lambda(1405) *T. Hyodo*
- Are the chiral based \$\bar{K}N\$ potentials really energy-dependent? J. Revai

Session 4 Chair: E. Hiyama

J. Kuboś Studies of hyperon production in HADES

- Kaonic Deuterium precision measurement at DAFNE: the SIDDHARTA-2 experiment M. Miliucci
- In-medium properties of SU(3) baryons K. Hong
- Universal physics of two neutrons and one flavored meson in pionless effective theory U. Raha

<u>Few-body methods in nuclear physics and astrophysics + Few-nucleon systems including</u> <u>QCD inspired approaches</u> [FB_Nucl&QCD]

Session 1 Chair: R. Kanungo

P. Descouvemont Four-body effects in nucleus-nucleus scattering

- Astrophysical S-factor of the direct $\alpha(d, \gamma)^{6}$ Li capture reaction in a three-body model *D. Baye*

- Direct measurement of the $^{13}C(\alpha,n)^{16}O$ reaction at LUNA $\,$ G.F. Ciani
- A new measurement of the 2 H(p, γ) 3 He cross section in the BBN energy range at LUNA *F. Cavanna*
- S-factor and scattering-parameters from ${}^{3}\text{He}(\alpha, \gamma)$ data D. Phillips
- Observation of new neutron resonances in ^{17,19}C Y. Sato

Session 2 <u>Chair: M. Hussein</u>

J. Rotureau Combining structure and reactions: construction of microscopic optical potentials

- Ab initio folding potentials for proton-nucleus scattering based on NCSM nonlocal one-body densities *Ch. Elster*
- Description of scattering reactions of deuteron projectiles using the Gamow Shell Model with the Resonating Group Method *N. Michel*
- A new ab initio approach for nuclear reactions based on the symmetry-adapted NCSM A. Mercenne
- Polarisabilities from Compton scattering on ³He and beyond *H. Griesshammer*
- Three-body approach to deuteron- α scattering and bound state using realistic forces in a separable or non-separable representation *L. Hlophe*
- Session 3 <u>Chair: U. van Kolck</u>
- Y. Ikeda Hadron interactions from lattice QCD application to hadron resonances
- **T. Yamazaki** Relation between scattering amplitude and Bethe-Salpeter wave function inside interaction range

E. Berkowitz Towards grounding nuclear physics in QCD

K. Hadjiyiannakou Nucleon structure from LQCD

- Dibaryon candidates in decuplet baryons from lattice QCD S. Gongyo

Session 4 Chair: L. Grigorenko

O. Sorlin Evolution of neutron correlations when reaching the drip line

- Exploring the p-n interaction close to the drip-line in the fluorine isotopic chain A. Revel
- The first unbound states in the A=9 mirror nuclei ⁹B and ⁹Be *M. Odsuren*
- Structure of Beryllium isotopes beyond the neutron dripline B. Monteagudo
- Glauber model analysis for the ²²C nuclear radius W. Horiuchi
- Nuclear short-range correlations the contact relations R. Weiss

Session 5	<u>Chair: I. Ciepał</u>
I.Mardor Components of polarization-transfer to a bound proton in a deuteron n	
	by quasi-elastic scattering
- Measuremer	nt of ³ He analyzing power for p- ³ He elastic scattering at 70 MeV A. Watanabe

- Complete set of deuteron analyzing powers for d-p elastic scattering at 70--300 MeV/nucleon and three-nucleon forces *K. Sekiguchi*
- Three-nucleon force studies in p-d break-up reaction with BINA at 190 MeV M. Mohammadi-Dadkan
- Differential cross section for deuteron breakup in collision with proton measurements at intermediate energies *E. Stephan*

- Study of three-nucleon dynamics in the d-p breakup collisions using the WASA detector B. Klos

- Session 6Chair: A. DeltuvaS. ShimouraTetra-neutron system populated by RI-beam induced reactionsZ. YangStudy of multipopulation systems with SAMURAL
- **Z. Yang** Study of multineutron systems with SAMURAI
- Five-nucleon systems with an Hyperspherical Harmonics Method J. Dohet-Eraly
- High-precision nucleon-nucleon potentials from chiral EFT *P. Reinert*

Session 7	<u>Chair: N. Timofeyuk</u>
Ch. Greene	Adiabatic hyperspherical picture of 3n and 4n states
E. Hiyama	Structure of tetra neutron system
M. Viviani	Four-body continuum with 3N-forces
A. Shirokov	Tetra-neutron resonance in the single-state HORSE approach
- Few neutron rea	sonances from chiral EFT Ph. Klos

Session 8 <u>Chair: P. Descouvemont</u>

A. Volya Microscopic studies of α clustering in light nuclei

- Depolarization ratio of γ rays as a tool to untangle the shape of α -clustered nuclei L. Fortunato
- Tensor correlations in α clustering studied with antisymmetrized quasi cluster model Y. Kanada-En'yo
- Elastic $\alpha^{_{-12}}$ scattering at low energies with the bound states of ^{16}O in EFT $\,$ S.-I. Ando
- Investigating ^{16}O above the 4α breakup threshold ~ J.A. Swartz
- Background free measurement of the γ -decay of the 17.64MeV (1⁺) state in ⁸Be *H.O.U. Fynbo*

Session 9 <u>Chair: W. Nazarewicz</u>

Y. Kondo Experimental studies of unbound neutron-rich nuclei

- Theoretical studies of few-body phenomena in light exotic nuclei L. Grigorenko
- Search for dineutron correlation in borromean halo nuclei A. Corsi
- Nuclear reaction near the three-body thresholds S. Oryu
- Two-nucleon emitters within a pseudostate approach J. Casal
- Boron isotopes at the dripline: the ¹⁹B case J. Gibelin

Session 10 Chair: A. Shirokov

G. Hupin p-shell structure through the looking-glass of ab initio transfer reactions

- Properties of light lattice nuclei from EFT N. Barnea
- How to use renormalization group analysis in lattice nuclear EFT K. Harada
- Low-energy QCD research at TUNL C. Howell
- Ab initio calculations for p-shell nuclei with Daejeon16 Y. Kim
- Single-state HORSE method for description of resonant states within the nuclear shell model *A. Mazur*

Session 11	<u>Chair: M. Viviani</u>
Y. Maeda	Experimental analysis of few-body physics
H. Witała	Three-nucleon continuum reactions with semilocal coordinate-space regularized chiral forces

- Few-nucleon system dynamics studied via deuteron-deuteron collisions at 160 MeV I. Ciepał

- Measurement for $p-{}^{3}$ He elastic scattering with a 65 MeV polarised proton beam S. Nakai

Session 12	<u>Chair: Ch. Elster</u>	
A. Deltuva	Collisions in few-neutron systems	
M. Hussein Inclusive breakup reaction of a two-fragment projectile on a two-fragment target: A genuine four-body problem		

- Three-nucleon force contribution to the distorted-wave theory of (d,p) reactions N. Timofeyuk

- Cluster configuration effects in elastic scattering of light proton and neutron-rich nuclei V. Guimaraes

Session 13	<u>Chair: E. Piasetzky</u>
M. Mihovilovic	Electron scattering experiment on light systems
S. Bacca	Electromagnetic sum rules in light nuclei
Approvimate cum	rule for the electric dinele memort of light nuclei

- Approximate sum rule for the electric dipole moment of light nuclei N. Yamanaka
- Momentum distributions and short-range correlations in ³He with chiral potentials *L.E. Marcucci*

Interdisciplinary aspects of few-body physics and techniques [FB_Interdiscip]

Session 1 Chair: M. Gattobigio

P. Naidon Tetramers of 2+2 bosons

- Universality and the Coulomb interaction Ch. Schmickler

- Universality in few-body systems P. Stipanović

- Universal relations for heteronuclear few-body systems *L. Platter*

- Universal Phillips lines for identical bosons and particles of different masses V. Roudnev

- Fate of the neutron-deuteron virtual state as an Efimov level G. Rupak

Session 2 <u>Chair: M. Lekala</u>

A. Kievsky Bosonic drops with two- and three-body interactions close to the unitary limit

- The problem of cluster separability in relativistic few-body systems W. Schweiger

- Asymmetric regularization and the universal character of the ⁴He spectrum *J. Kirscher*

- A simple tool to study many-body forces C. Semay

Session 3 <u>Chair: R. Pohl</u>

Chen Ji Ab initio calculation of nuclear-structure effects in muonic atoms

- Some new ideas for the proton radius puzzle Ch. Allton

- The deuteron-radius puzzle is alive: a new analysis based on chiral EFT theory O.J. Hernandez

- Dipole-dipole dispersion interactions between neutrons R. Higa

Session 4 <u>Chair: D. Baye</u>

W. Polyzou Scattering using real-time path integrals

- Complex-range Gaussians as a basis for treatment of charged particle scattering O. Rubtsova

- Hyperspherical Harmonics Method with particle excitation degrees of freedom W. Leidemann

- Conformality lost In Efimov Physics A. Mohapatra
- Neutron matter in the unitary limit with implicit renormalization of short range interactions *V. Timoteo*
- Transition exponent and condensate fluctuation of mesoscopic Bose-Einstein condensate in anharmonic trap *M. Lekala*