Pan-American Few-Body Physics Boot Camp: Fostering Collaboration

Monday 13 October 2025 - Friday 24 October 2025

ECT*

Book of Abstracts

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Talk by Filip Agert

Author: Nils Filip Agert[1]

[1] *IJCLab*

Corresponding Author: filip.agert@gmail.com

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Talk by Louis Heitz

Author: Louis Heitz[1]

[1] *IJCLab*

Corresponding Author: louis.heitz@ijclab.in2p3.fr

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Talk by Vinicius Ader

Author: Vinicius Ader[1]

[1] *Universidade de Sao Paulo*

Corresponding Author: viniciusader@usp.br

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Complete and Incomplete Fusion of Light Nuclei

Author: Jeannie Rangel Borges[1]

[1] *Universidade do Estado do Rio de Janeiro*

Corresponding Author: jeannierangel@gmail.com

The projectile's low breakup threshold significantly impacts fusion dynamics, making precise predictions of CF and ICF cross sections a major theoretical challenge.

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Talk by Patrick McGlynn

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Modified few-body Faddeev-type equations in configuration space

Author: Renat Sultanov[None]

Corresponding Author: sultanov_r@utpb.edu

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Talk by Francesca Bonaiti

Author: Francesca Bonaiti[1]

[1] *FRIB*

Corresponding Author: bonaiti@frib.msu.edu

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Nuclear reactions and nuclear structure.

Author: Branda Pinheiro-Carneiro[1]

[1] *Federal Fluminense University*

Corresponding Author: bpinheiro@id.uff.br

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Talk by Maximilian Jorwieser

Author: Maximilian Korwieser[1]

[1] *TUM*

Corresponding Author: maximilian.korwieser@cern.ch

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Talk by Georgios Mantzaridis

Author: Georgios Mantzaridis[1]

[1] *TUM*

Corresponding Author: georgios.mantzaridis@cern.ch

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Lecture

Author: Alejandro Kievsky[1]

[1] *INFN*

Corresponding Author: kievsky@pi.infn.it

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The Three-Body Limit Cycle: Universal Form for General Regulators

We derive the universal functional form of the three-body renormalization relation for general separable regulators through a detailed analysis of the Skorniakov-Ter-Martirosian and Faddeev equations.

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Effective field theory for atomic 4He clusters

Author: Lucas Madeira[1]

[1] *ECT**

Corresponding Author: lucasmadeira@gmail.com

We study helium-4 clusters using effective field theory, computing their binding energies with quantum Monte Carlo methods. The results highlight universal features of strongly interacting systems.

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Deformed one-neutron halo nuclei using halo effective field theory

Author: Live-Palm Kubushishi[1]

[1] *Ohio University*

Corresponding Author: lkubushi@ohio.edu

In this talk, I present a phenomenological extension of halo-EFT and a more formal EFT-like study that include core excitation effects. Results for Be, C and C will be shown.

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Talk by Philipp Quoss

Author: Philipp Quoss[1]

[1] *TUD*

Corresponding Author: philipp.quoss@tu-darmstadt.de

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Discrete and Continuous Scale Invariance in Quantum Few-Body Systems: Applications to Cold Atoms and Two-Neutron Halo Nuclei

Author: Rafael Mendes Francisco[1]

[1] *ITA*

Corresponding Author: rafaelrmf@ita.br

Efimov universality describes three-body systems near unitarity, where large scattering lengths make their properties essentially independent of short-range interaction details. This regime is marked by discrete scale invariance, reflected in a geometric spectrum of trimers. In ultracold atomic gases, external magnetic fields allow precise tuning of interactions to the resonant regime, while confinement in traps enables the exploration of extreme spatial compression. Theoretical studies model this compression through an effective continuous dimension, showing that beyond a critical value the discrete scale invariance of three dimensions is suppressed and replaced by continuous scale invariance. Remarkably, nuclear physics offers a natural analogue: two-neutron halo nuclei are weakly bound systems sustained by a fine-tuned neutron–core interaction, leading to a very large scattering length. In this context, Efimov physics provides the framework to analyze their geometry, including the mean distances among constituents, governed by scaling laws set by a single three-body parameter.

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Talk by Andrew Smith

Author: Andrew John Smith[1]

[1] *FRIB*

Corresponding Author: smithan@frib.msu.edu

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Talk by Luiz Tenorio

Author: Luiz Gustavo Mendonca Tenorio[1]

[1] *ITA/Tohoku University*

Corresponding Author: mendonca.tenorio.luiz.gustavo.p5@dc.tohoku.ac.jp

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Talk by Pedro Magro

Author: Pedro Luis Domingues Magro[1]

[1] *Universidade de Sao Paulo*

Corresponding Author: pedro.dominguesm@usp.br

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Closing