

#### New members

PCS welcomes Gabriel Lando as a Research Fellow. He works in quantum chaos and semiclassical physics in general, and has experience in the use of initial value representations for the study of mesoscopic quantum-mechanical systems. He is interested in any topic requiring the use of efficient numerical machinery for the solution of nonlinear problems, such as: weakly non-integrable Hamiltonian systems, attosecond/strong-field physics, cold atom dynamics, among others.



#### Awards



Congratulations! Dr. Dario Rosa won the 2022 IBS Outstanding Researcher Award.

Congratulations! Mr. Sanghoon Lee won a best poster prize for presenting the poster 'Critical-to-Insulator Transition and Fractality Edges in Perturbed Flatbands' at the Dynamics Days Asia Pacific12 on 7-11 November held at IBS. Well done!



## PCS Workshops and Meetings

PCS successfully hosted a one day workshop Focus Workshop Topological Quantum Matter at PCS on December 12, 2022. We enjoyed six invited talks with 30 participants.





### PCS IBS Seminars

"Sequences of magnetic field-induced phase transitions in frustrated helimagnets of low symmetry?" by Oleg Utesov, St. Petersburg State University, Russia (December 1)

"Critical Site Percolation on the Triangular Lattice" by Paul Pearce, University of Melbourne, Australia (December 5)

You can find more seminars on this page.

### New research results



# Delayed thermalization in the mass-deformed Sachdev-Ye-Kitaev model

Dillip Kumar Nandy, Tilen Čadež, Barbara Dietz, Alexei Andreanov, and Dario Rosa

Phys. Rev. B 106, 245147 (arXiv:2206.08599)

The authors numerically study the thermalizing properties of the mass-deformed Sachdev-Ye-Kitaev model, in a regime of parameters where the eigenstates are ergodically extended over just portions of the full Fock space, as an all-to-all toy model of many-body localization (MBL). To understand various phases of the studied model as a function of deformation parameter they use the Frobineuous norm of the adiabatic gauge potential (AGP) and the spectral form factor as main quantifiers. Their numerical results strongly support the hypothesis that, although considerably delayed – meaning long relaxation time – thermalization is still present in the above mentioned regime. Their results supplement to recent studies indicating that MBL should be interpreted as a strict Fock-space localization.

### Puzzle of the month

#### November puzzle answer:

Only one answer arrived, and that one was incorrect. Apparently the submitter did not try to make the experimental test first. So, without a winner in sight, we will post the problem again:

#### Puzzle of the month:

A bike has one of its pedals at its lowest point (and the other pedal at its highest point). We fix a rope to the lowest point pedal and gently pull backwards. Which way will the bike move? We recommend you first go to your bike or the one of your friend

and perform the test (it's really easy). After the jaw dropping is over, send us the answer - but this time we want a thorough explanation as well.

Send your solution to <u>eun@ibs.re.kr</u> The winner will be announced in the next issue.



