Abstract ID : **38**

Floquet breathers in a time-modulated nonlinear lattice

Content

Floquet discrete breathers are localized periodic solutions that may appear in nonlinear lattices with periodic modulation in space and time.
Based in a previous experimental device constructed with cantilevers and with additive time-periodic excitation, we have designed a system with parametric driving that can be modulated in space and time.
For that system, we deduce theoretically the changes brought about by the modulation, first in the phonon band and then on breather properties as existence, stability and the numerical methods to obtain them.
We have found a large variety of Floquet breathers with equal period of the modulating one, multiplied or divided by an integer and communsurate ones.
The results are applicable to a variety of systems and are not limited to the specific model.

Acknowledgements:
JFRA acknoledges a travel grant from Universidad de Sevilla, VII PPITUS-2026 and project PID2022-138321NB-C22 funded by MICIU/AEI/10.13039/501100011033 and ERDF/EU.
MK acknowledges support from JSPS Kakenhi (C) No. 24K07393 and 21K03935.
YD acknowledges support from JSPS Kakenhi (C) No. 24K14978.
VJSM acknowledges project PID2022-138321NB-C22 funded by MICIU/AEI/10.13039/501100011033 and ERDF/EU.

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Track Classification: M13 - Localization Dynamics in Matter and Waves

Contribution Type: 4) Invited talk

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