

MOBIL

Moving Breathers in Inhomogeneous Lattices

LOCNET International Workshop

Sevilla, Spain, 21-22, February 2003.

<http://www.grupo.us.es/gfni/mobil>, Email: mobil-gfni@us.es

Organized by the Group of Non Linear Physics of the University of Sevilla
Associate node of the LOCNET

<http://www.grupo.us.es/gfni>

With the collaboration of the **Department of Applied Physics I**, the **Physics Faculty** and the **Research Vice-Rectorship** of the **University of Sevilla**.

Subjects:

- Moving breathers in disordered lattices
- Moving breathers in lattices with impurities
- Moving breathers in curved lattices
- Moving breathers and media interfaces

Chairman	Scientific Committee	Organizing Committee	Collaborators
JFR Archilla	<ul style="list-style-type: none">• FR Romero• B Sánchez-Rey• F Palmero	<ul style="list-style-type: none">• B Sánchez-Rey• A Álvarez• F Palmero	<ul style="list-style-type: none">• J Cuevas• C Katerji

Location: Department of Applied Physics I at ETSI Informática and Physics Faculty, University of Sevilla

SCIENTIFIC BACKGROUND:

Breathers are localized oscillations in nonlinear, discrete systems as crystals, biomolecules and Josephson Junctions arrays. In 1994, the concept of *breather* was established on solid mathematical basis. Since then, mathematical methods of high precision have been developed to analyze their properties, specially, their mobility. Equally, it has been possible to detect their existence experimentally in some systems and further research is currently underway.

The objective of **MOBIL** is to clarify the complementary aspect brought about by the nonlinearity. Breathers restore mobility in inhomogeneous systems, which is impossible if they are linear. This striking property makes them candidates to be a means of charge and energy transfer in biomolecules like DNA and other biopolymers. Understanding this phenomenon is important for the study of DNA functions as replication and transcription, and to the design of electronic nanodevices based in this molecule.