



Mathematical modelling and experimental study of real-world problems.  
Bifurcations in smooth and nonsmooth differential equations.  
Numerical methods and computational tools for dynamical systems.  
Nonlinear oscillations in mechanics, chemistry, biology, electronics.  
Modelling and control of plant and infectious diseases.

### **Principales publicaciones de los últimos 5 años**

- BIFURCATION ANALYSIS OF A VIBRO-IMPACTING CAPSULE ROBOT IN CONTACT WITH A CIRCULAR FOLD; PHYSICA D NONLINEAR PHENOMENA; 2022;
- OPTIMISING THE LOCOMOTION OF A VIBRO-IMPACT CAPSULE ROBOT SELF-PROPELLING IN THE SMALL INTESTINE; COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION; 2022;
- CONTROLLING COEXISTING ATTRACTORS OF A CLASS OF NON-AUTONOMOUS DYNAMICAL SYSTEMS; PHYSICA D NONLINEAR PHENOMENA; 2022;
- A MODEL FOR TYPE I DIABETES IN AN HIV-INFECTED PATIENT UNDER HIGHLY ACTIVE ANTIRETROVIRAL THERAPY; CHAOS SOLITONS AND FRACTALS; 2022;
- REASSESSMENT OF CONTACT RESTRICTIONS AND TESTING CAMPAIGNS AGAINST COVID-19 VIA SPATIO-TEMPORAL MODELING; NONLINEAR DYNAMICS; 2022;
- CONTROLLING GRAZING-INDUCED MULTISTABILITY IN A PIECEWISE-SMOOTH IMPACTING SYSTEM VIA THE TIME-DELAYED FEEDBACK CONTROL; NONLINEAR DYNAMICS; 2022;
- AN IN-HOST HIV-1 INFECTION MODEL INCORPORATING QUIESCENT AND ACTIVATED CD4+ T CELLS AS WELL AS CTL RESPONSE; APPLIED MATHEMATICS AND COMPUTATION; 2021;
- DISCONTINUITY-INDUCED BIFURCATIONS IN A PIECEWISE-SMOOTH CAPSULE SYSTEM WITH BIDIRECTIONAL DRIFTS; COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION; 2021;
- DYNAMICAL RESPONSE OF A ROCKING RIGID BLOCK; CHAOS; 2021;
- A DENGUE EPIDEMIC MODEL HIGHLIGHTING VERTICAL-SEXUAL TRANSMISSION AND IMPULSIVE CONTROL STRATEGIES; APPLIED MATHEMATICAL MODELLING; 2021;

### **Membresía en sociedades científicas y profesionales**

#### **Premios y honores**

- DIPLOMA MEJOR PROFESOR EN EL ÁMBITO DE INVESTIGACIÓN, 01/10/2020
- BECA GUSTAVO GALINDO, 22/11/2002
- MEDALLA DE HONOR, 28/10/2002

#### **Cursos en el año académico actual**

- ANÁLISIS NUMÉRICO, número de paralelos: 2
- MATEMÁTICAS SUPERIORES, número de paralelos: 3

#### **Otras responsabilidades en el año académico actual**

COORDINADOR DE MATERIA TRANSVERSAL DE UNIDAD ACADÉMICA; INVESTIGACIÓN (20 HORAS)

#### **Desarrollo profesional**

- ÉTICA PÚBLICA, 20/11/2025 - 04/12/2025, 10 HR., EDUCACIÓN ORGANIZACIONAL CONTINUA