



# Contents

<b>Mathematics of Planet Earth</b> . . . . .	1
Christiane Rousseau	
<b>The Role of Boundary Layers in the Large-scale Ocean Circulation</b> . . . . .	11
Laure Saint-Raymond	
<b>Noise-induced Periodicity: Some Stochastic Models for Complex Biological Systems</b> . . . . .	25
Paolo Dai Pra, Giambattista Giacomini and Daniele Regoli	
<b>Kinetic Equations and Stochastic Game Theory for Social Systems</b> . . . . .	37
Andrea Tosin	
<b>Using Mathematical Modelling as a Virtual Microscope to Support Biomedical Research</b> . . . . .	59
Chiara Giverso and Luigi Preziosi	
<b>Ferromagnetic Models for Cooperative Behavior: Revisiting <i>Universality</i> in Complex Phenomena</b> . . . . .	73
Elena Agliari, Adriano Barra, Andrea Galluzzi, Andrea Pizzoferrato and Daniele Tantari	
<b>The Near Earth Asteroid Hazard and Mitigation</b> . . . . .	87
Ettore Perozzi	
<b>Mathematical Models of Textual Data: A Short Review</b> . . . . .	99
Mirko Degli Esposti	
<b>Space Debris Long Term Dynamics</b> . . . . .	111
Anne Lemaitre and Charles Hubaux	
<b>Mathematical Models for Socio-economic Problems</b> . . . . .	123
Maria Letizia Bertotti and Giovanni Modanese	

<b>Climate as a Complex Dynamical System</b> .....	135
Antonello Provenzale	
<b>Periodic Orbits of the <math>N</math>-body Problem with the Symmetry of Platonic Polyhedra</b> .....	143
Giovanni Federico Gronchi	
<b>Superprocesses as Models for Information Dissemination in the Future Internet</b> .....	157
Laura Sacerdote, Michele Garetto, Federico Polito and Matteo Sereno	
<b>Appendix: Pictures from INdAM Workshop</b> .....	171