

THE HOW AND WHY OF MARE PLASTICUM –THE PLASTIC SEA

Marilena Streit-Bianchi

<https://www.springer.com/gp/book/9783030389444>

A series of several parallel white lines of varying thicknesses, slanted diagonally from the bottom left towards the top right, set against a blue gradient background.

ARSCIENCIA has organised several exhibitions of art work, which was done by Wolfgang Trettnak and Margherita Cimadevila from marine plastic litter collected on Galician beaches in winter, with the intent to raise awareness on the how, the why and the consequences of marine plastic pollution, Because of the dramatic situation continuously reported world-wide we finally decided that time had come to produce a science & art book intended also for non-experts interested in knowing more than what was available from newspaper articles.

After discussing with Springer's Executive Editor Marina Forlizzi about the possibility to present a proposal, we asked many internationally recognized scientists (from marine biologists to mathematicians/modeling specialists, chemists, physicists and economists) to contribute to the 13 chapters of the present book. Their enthusiastic participation and valuable experience provide a comprehensible overview of the problems we are facing today.

Plastic and its derivatives have been and are so widely used in our daily lives that the issues related to:

PRODUCTION, DISPOSAL, RECYCLING and POLLUTION

concern the whole world and urgently need worldwide coordinated actions

INNOVATION

TECHNOLOGY

EDUCATION

Many aspects developed in the chapters:

- ▶ Make the point of the situation
- ▶ Raise awareness with data information and
- ▶ Call to a multidisciplinary approach between different entities to find long term sustainable solutions

Physics and its scientists can valuably contribute:

1. *Monitoring and reduction of the polluting impact*

- Detection of floating plastics from satellites and unmanned aerial systems (Plastic Litter Project 2018)
- Developing the use of Drones for monitoring waters, beaches, riverbanks etc. (see Aliani et al. 2020)

2. *Development and use of new technologies*

- Spectroscopic techniques for monitoring from space or air low altitude
- Developing improved separation techniques for waste recycling
- New techniques to identify and evaluate the amount of plastic on the seabed
- New techniques for the separation of microplastics in waste water treatment

3. *Modeling*

4. *Data interconnections for immediate information as in Big Science projects*

5. *Opportunities for the creation of new start-ups*