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CONTENTS

AQUA INCOGNITA

WHY ICE FLOATS ON WATER
AND GALILEO 400 YEARS ON

PIERANDREA LO NOSTRO
AND BARRY NINHAM

Fondazione Enzo Ferroni - Onlus

In October 1611, Cosimo II De' Medici sponsored a debate in Florence starring Galileo on "Why ice floats on water". 400 years later 25 scientists commemorated the event, revisiting all things to do with water: modern views on Galileo, fresco restoration, cement. Water, its history, in jellyfish; solutions of salts and specific ion effects in biology; of light and magnetic fields on water; dissolved gases.

It became clear that the foundations of the theories of physical and colloid chemistry that underpin science, from chemical engineering to molecular and cell biology, even climate science, face serious challenges. As in Galileo's time the science is not settled. And we still can not explain why ice floats on water. A serious revision is called for and is under way.

Professor Pierandrea Lo Nostro does his research and teaching mainly at the University of Florence in Physical and Environmental Chemistry since 1990. His interests in electrolytes in water, interfacial and living systems and nanoparticles are shared by his collaborator Barry Ninham. They are presently re-exploring the foundations.

Professor Barry Ninham has led research teams in the natural sciences at the Australian National and other Universities since 1970. He and his co-workers have pioneered our understanding of molecular forces and self-assembly of soft matter in physical and colloid chemistry.

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