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## **Preface**

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### **K.A. Matis**

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**Biographical notes:** Kostas A. Matis obtained his first degree in Chemistry (1973) from the same Department in Aristotle University that he has been serving since 1980. He was awarded his MSc by research (1975) and his PhD (1977) from the then Chemical Engineering Department of the University of Newcastle-upon-Tyne, UK. He became a Professor of Chemical Technology, in 1995. He has published more than 120 papers in refereed journals (which have attracted around 1000 citations) and participated in more than 50 scientific meetings. He is the editor of three books, mainly on flotation and has received two patents. His main specialisation is in separation science and technology, and also in wastewater treatment, environmental biotechnology, inorganic materials and mineral processing.

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Flotation originated from the field of mineral processing; and the importance of it to the economy of the whole industrial world is enormous. For many years, various particulate solids besides minerals have been extracted from water by using this effective gravity separation process, which is based on the idea of applying rising gas bubbles as the transport medium and the attachment of particles to the bubbles to transfer the solids from the body of water to the surface. As opposed to settling, flotation is a solid-liquid separation technique that is applied to particles whose density is lower or has been made lower than that of the liquid they are in. These flotation applications refer mainly to the treatment of water and wastewater, and this is the theme of the present Special Issue of IJEP. Sustainable water and wastewater treatment is a combination of technology and practice that meets the multiple and changing requirements of society in an optimal economic and ecological way during the lifecycle of the treatment plant.

The subject coverage of this Special Issue is particularly original research papers, with a focus on innovative flotation applications. Such applications cover industrial effluents, as well as more fundamental theoretical areas. Apart from the rather dominant dissolved air flotation, various bubble generation methods are reported including dispersed-air and electrolytic flotation. The present edition is rather timely because we are currently celebrating the 100 years of flotation; as in the period 1900–1915 the process was developed for zinc and lead minerals at Broken Hill, Australia. Nevertheless, the historian Herodotus, in ancient Greece in the 5th century BC, was the first person who described a process similar to flotation for the separation of gold particles from sand using fatty substances (as collector). Authors from more than ten countries from around the world have contributed to this collection, and as Guest Editor I am deeply grateful to all these distinguished scientists.