Awards of the 2017 Fredericks Medals for physics and chemistry of liquid crystals

Sofia Torgova

Russian Academy of Sciences, P.N. Lebedev Physics Institute, Moscow, Russia

The prestigious Fredericks Medals were established in 1996 and are awarded by the Russian Liquid Crystal Society to honour outstanding liquid crystal scientists for their significant contributions to the field. They are awarded in the fields of physics and chemistry and are given in an alternating fashion to Russian and non-Russian researchers.

Mikhail Alekseevich Osipov

Mikhail Osipov graduated from the Physics Faculty of Moscow State University in 1979, and in 1983 defended his Ph.D. thesis. In the period 1983–2000, he worked in the theoretical department of the Institute of Crystallography of the Russian Academy of Sciences and in 1991 defended his doctoral dissertation on the theory of the condensed state. Since 2000, M. Osipov has been working as professor of applied mathematics at the University of Strathclyde in the United Kingdom, where between 2000 and 2009, he was the head of the group of continuum mechanics, which was formerly headed by Professor F. Leslie, a world-famous expert in the field of the mathematical theory of liquid crystals. Since 2015, M. Osipov also works as a main scientific employee of the A. V. Topchiev Institute of Petrochemical Synthesis of the Russian Academy of Sciences.

Professor Osipov is one of the world’s leading experts in the field of the molecular theory of liquid crystals and related materials. He has published more than 150 scientific articles and 8 reviews. M. Osipov made important contributions to the molecular and phenomenological theory of thermotropic and lyotropic liquid crystals. A fundamental impact was made to the theory of ferroelectric liquid crystal ordering, phase transitions, the theory of elasticity, viscosity, flexoelectric, dielectric and surface properties of liquid crystals, the theory of cholesteric ordering in low-molecular LC and liquid-crystal polymers, and, in recent years, in the molecular theory of liquid-crystalline and polymeric nanocomposites.

Osipov is an active member of the international liquid crystal community. In the period 2006–2011, he was a member of the editorial board of the international journal ‘Liquid Crystals’, and in 2010 he was elected as a member of the Award Committee of the International Liquid Crystal Society (ILCS), on which he served until recently. At various stages, Osipov was a member of International Organizing Committees and Program Committees of International and European Conferences on LCs, as well as International Conferences on ferroelectric LCs. Since 2018, he is a member of the Newton Fund Commission in the United Kingdom. Professor Osipov regularly presents invited talks and lectures at International Conferences and Schools. In 2008, he was a visiting Mercator professor at the University of Stuttgart with the financial support of the German Scientific Foundation (DFG), which nominated him for this position. Mikhail Osipov was also a visiting professor at the Technical University of Chalmers (Sweden, 1998) and the University of Montpellier II (France, 2007). In the period from 1991 to 1999, he was a Fellow of the Humboldt Foundation and the Science Foundation of Japan, and also worked at the Tokyo Institute of Technology, as well as the universities of Southampton, Exeter and Lisbon as a visiting researcher. M. Osipov was one of the organisers of the six-month scientific school ‘Mathematics of Liquid Crystals’, conducted at the Newton Institute in Cambridge in 2013. In 2015, he was awarded the Hilsun Medal of the British Liquid Crystal Society (BLCS) for outstanding achievements in molecular LC theory.
During his time at Strathclyde University, M. Osipov was the principal investigator of several projects supported by the UK Science Foundation (EPSRC), including a project that forms part of a large international project within the ‘Materials World network’, which was co-financed by the funds of the United States, Germany, Great Britain, Canada and Sweden (2010–2013). In the period between 2009 and 2013, Mikhail Osipov also directed three projects of the Ministry of Education and Science of the Russian Federation, coordinating the work of the experimental group at the Institute of Petrochemical Synthesis of the Russian Academy of Sciences. Currently, he is the head of the project of the Russian Scientific Foundation ‘Influence of anisotropy on the phase structure and properties of composites based on amorphous and liquid crystal block copolymers and nanoparticles’.

The award ceremony for the 2017 Fredericks Medals was held during the 27th International Liquid Crystal Conference (ILCS), which took place in Kyoto, Japan. Prof Mikhail Osipov was awarded for his outstanding contributions to the Physics of Liquid Crystals (Figure 1).

The award for chemistry was given to Prof Jose Luis Serrano from the University of Zaragoza, Spain.

**Professor Jose Luis Serrano**

José Luis Serrano received his PhD in Chemistry in 1980 from the University of Zaragoza (Spain) under the supervision of Prof. Enrique Meléndez. He was appointed as Associate Professor of Organic Chemistry from 1985 to 1996 and then as full Professor of Organic Chemistry. Serrano participated in a multitude of national projects, being the principal investigator for many of these projects. He was also involved in a variety of European research projects, for three as coordinator and as principal investigator of the Zaragoza group in the remaining seven projects, and in numerous regional projects, being principal investigator for most of them.

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**Figure 1.** Award ceremony for the 2017 Fredericks Medals, held during the 27th International Liquid Crystal Conference in Kyoto, Japan. Prof Mikhail Osipov was awarded for his outstanding contributions to the Physics of Liquid Crystals.
Since the presentation of his doctoral thesis in 1980, he participated together with Professor Enrique Meléndez in the creation of a research group at the University of Zaragoza on the topic of Liquid Crystals (LC), which has gained international recognition, developing several lines of research that have been leading in the field, such as ferroelectric and antiferroelectric liquid crystals, metal-containing LCs, photosensitive LC polymers, liquid crystals based on supramolecular complexes, functional liquid crystals and more recently in new materials based on LC dendrimers and nanomaterials for biomedical applications. Since 1984, Serrano is the group leader of the research group ‘Liquid Crystals and Polymers’ (CLIP) recognised at the highest level by the regional government of Aragon since 2003.

Professor Serrano is editor of the book ‘Metallo mesogens: Synthesis, properties and Applications’ VCH, Weinheim, Germany, 1996. Up to date, the results of his research activities are collected in more than 350 publications, including 13 reviews by invitation, 5 international patents and numerous participations in specialised conferences having given 10 plenary and 36 invited lectures. He has in addition given more than 80 lectures and seminars at universities and national and international research centres.

Prof Serrano was supervisor of more than 30 doctoral theses, and more than 50 Masters’ dissertations. He supervised 15 postdoctoral researchers from Germany, the United Kingdom, Italy, France, Ireland, Holland, Japan, Chile and Spain.

Serrano further participates in evaluation committees of the ANEP, the Scientific and Technological Promotion Agency of Argentina, the FONDECYT Foundation of Chile, the projects of the ‘TU High-Tech Materials Research Program’ of the Technological University of Eindhoven (Netherlands) and projects of the Foundation for Polish Science (Warszawa, Poland).

During his academic career, he was visiting professor at the Universities of Sheffield (UK) in 1998 and Bayreuth (Germany) in 2002. He held academic positions as Deputy Director of the Institute of Materials Science of Aragon from 1987 to 1991, Director of the Department of Organic Chemistry from 2002 to 2004 and Deputy Director of the Aragon Nanoscience Institute from 2004 to 2007. From 2007 to 2011, he held the position of General Director of Research, Development and Innovation of the Government of Aragon.

In 2006, Prof Serrano was awarded with the ‘Aragón Investiga’ Award for Excellence in Research. He is now the recipient of the 2017 Fredericks Medal for his outstanding contributions to liquid crystal chemistry (Figure 2).