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Preface to the 60th Anniversary Issue of the European Journal of Mechanics A/Solids

in Honour of Natasha and Alexander Movchan

Natasha Movchan

Alexander Movchan

Natalia Movchan and Alexander Movchan, Natasha and Sasha to their friends, are both Professors of Applied Mathematics at the Department of Applied Mathematics, University of Liverpool, UK. Natasha and Sasha are known for their work on partial differential equations, asymptotic analysis, fracture mechanics, mathematical elasticity theory, waves in structured media, which also included important applications in the assessment of seismicity in geophysics, waves in elastic chiral systems that incorporate gyroscopic spinners, as well as new models of fluid-solid interaction in stented blood vessels. In the early 1990th Sasha and Natasha had a great opportunity to work with and learn from the world-renowned scientist Professor John R. Willis, FRS, at the University of Bath, and this work has lead to a productive and long-lasting research collaboration. At the University of Bath, Sasha and Natasha taught Applied Mathematics and worked on novel research problems of mathematical fracture, asymptotic analysis for solids with singularly perturbed boundaries, as well as multipole methods for elastic waves, till the end of 1998, and they recall this time as the most productive and enjoyable. Sasha has also worked in Oxford in 1991-1992, at the Oxford Centre for Industrial and Applied Mathematics (OCIAM) lead by the distinguished applied mathematician Dr Alan B. Tayler, CBE. It was during that time, when Sasha experienced the beauty of industrial mathematics and when he collaborated with Professor John Ockendon, FRS, Professor Sam Howison, and Professor Andrew Lacey, FRSE, on the textbook ``Applied Partial Differential Equations``, highly cited in the applied mathematics community (and even translated in Mandarin).

Since 1999 Natasha and Sasha work at the Department of Mathematical Sciences, University of Liverpool. At present, Natasha is the Applied Mathematics Research Cluster Lead at the department. Sasha is the founding Director of the Liverpool Research Centre for Mathematics and Modelling; he has also served as the Head of Applied Mathematics for eight years and then Head of Department of Mathematical Sciences for four years at the University of Liverpool.

Between two of them, Natasha and Sasha have published more than 350 research articles, as well as five topical monographs. Just recently, Sasha has co-edited the Theme Issue of Philosophical Transactions of the Royal Society A on ``Wave generation and transmission in multi-scale complex media and structured metamaterials'', bringing together the latest developments in wave scattering, wave localisation in complex media, pulsating flows, with a wide range of applications in mechanics of metamaterials, assessment of seismicity in geophysics, as well as dynamics of chiral elastic systems.

Over many years of intensive and passionate research work, Natasha and Sasha have coordinated and participated in more than 30 research grant programmes funded by the European Commission, Engineering and Physical Sciences Research Council, and have developed a series of excellent research projects with international collaborators in Italy, Sweden, France, USA, Australia and Israel.

Their scientific impact and global recognition have led to their involvement in many important scientific roles. Natasha is an Executive Editor of The Quarterly Journal of Mechanics and Applied Mathematics, and she is often invited to sit on the research expert panels of the Irish Research Council and UK Engineering and Physical Sciences Research Council. Both Natasha and Sasha are Fellows of the Institute of Mathematics and its Applications (IMA). Sasha is also EUROMECH Fellow, and for his outstanding work he was awarded Docteur Honoris Causa, by Aix-Marseille Université, France.

As a hobby, Natasha likes to play piano and enjoys watercolour and photography. Sasha is an instrument rated pilot, and he enjoys thinking of new mathematical models after his weekend flights; if you would like to know about a model of a chimney-like CB cloud, boundary layers, or mathematics of an aerodynamic stall, then just ask Sasha, and he will tell you all about it, with full derivation on the blackboard.

The international mechanics community is honouring Natasha and Sasha with the invited contributions collected in the present Special issue of the European Journal of Mechanics/A and is looking forward to many more years of learning from Natasha and Sasha and enjoying their genuine friendship.

Davide Bigoni Gennady Mishuris