Preface

This Theme Issue on X-ray topography and crystal characterization is dedicated to Professor Andrew Lang on the occasion of his seventy-fifth birthday. Since his invention of high-resolution X-ray topography in 1959, a very wide range of applications has been found. At that time, relatively few crystals were available of sufficiently high perfection to benefit from the technique. Since then, the growth of the electronics industry and the application of Lang topography itself to problems of crystal growth have meant that studies of materials as diverse as silicon, diamond, copper, iron, sapphire, ferroelectrics, explosives and delicate organic crystals have proven fruitful. The development of synchrotron radiation topography in the late 1970s led to a resurgence of interest and the development of dedicated beamlines for X-ray imaging at the major synchrotron radiation laboratories. Andrew himself has moved with these developments and even in retirement remains an active user of the Daresbury SRS. This volume also attests to the fact that many of those originally inspired to work in X-ray topography have branched into other fields of X-ray science, from tomographic crack imaging to the application of genetic algorithms to the inverse problem of X-ray scattering.

For this issue we invited former students, postdoctoral visitors, colleagues and summer school associates of Andrew to submit papers relevant to the Theme. Some, of course, for various reasons, had to decline the invitation, but we were delighted by the response and enthusiasm of all to the idea of the Theme Issue. We are grateful to the Editor of *Philosophical Transactions*, Professor Michael Thompson, for his ready agreement to include this Theme. It is particularly appropriate that this tribute should be published by the Royal Society, which recently awarded Andrew its prestigious Hughes Medal for his work on X-ray instrumentation.

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