

Preface

Scintillator detectors are used widely in the field of γ - and X-ray spectroscopy, particularly in the mid 1900s when the invention of NaI(Tl) by nobel laureate Robert Hofstadter in 1948, spurred the creation of new scintillator materials. In the development of such new scintillators, important characteristics such as its intrinsic efficiency, position sensitivity, robustness, energy and timing response, light output, etc, need to be addressed. To date, these requirements cannot be met by a single type of scintillator alone and therefore the development of an “ideal” scintillator remains the holy grail of nuclear instrumentation. Consequently, the last two decades have seen significant progress in the development of scintillator crystals, driven largely by technological advances. Conventional inorganic scintillators such as NaI(Tl) and BGO are now being replaced with better, novel organic, inorganic, ceramic and plastic scintillators offering a wider variety of options for many applications.

The workshop on the Applications of Novel Scintillators in Research and Industry was held at University College Dublin in January 2015 and covered a wide range of topics that characterise modern advances in the field of scintillator technology. This set of proceedings covers areas including the growth, production and characterisation of such contemporary scintillators, along with their applications in various fields, such as; Medical Imaging; Defence/Security; Astrophysics; and Nuclear/Particle Physics. We would like to thank all those who presented their recent results on their research at the workshop. These proceedings attest to the excitement and interest in such a broad field, that pervades the pursuit of the development of novel materials for future applications.

We would also like to thank Professor Luigi Piro, for giving an interesting public talk during the conference, and to the Institute of Physics Ireland Group for supporting the event. We thank ORTEC for sponsoring the Poster Prize and Science Foundation Ireland, Scionix, and the Institute of Physics Nuclear Physics, Nuclear Industry and Materials and Characterisation groups for sponsoring the workshop. We also thank University College Dublin for use of the venue and general support that was given during the workshop.

Finally, I would like to thank the members of the Local Organising Committee for their help in making the workshop a success, and to Dr. Sheila McBreen and Professor Lorraine Hanlon for their help and support, particularly in putting these proceedings together. In addition to this we would also like to recognise the contributions made by the Scientific Organising Committee for their advice regarding the organisation of the programme, which was engaging and stimulated a lot of interest amongst the audience.

Dr. Oliver J. Roberts

Workshop Chair

On behalf of the organising committees.

