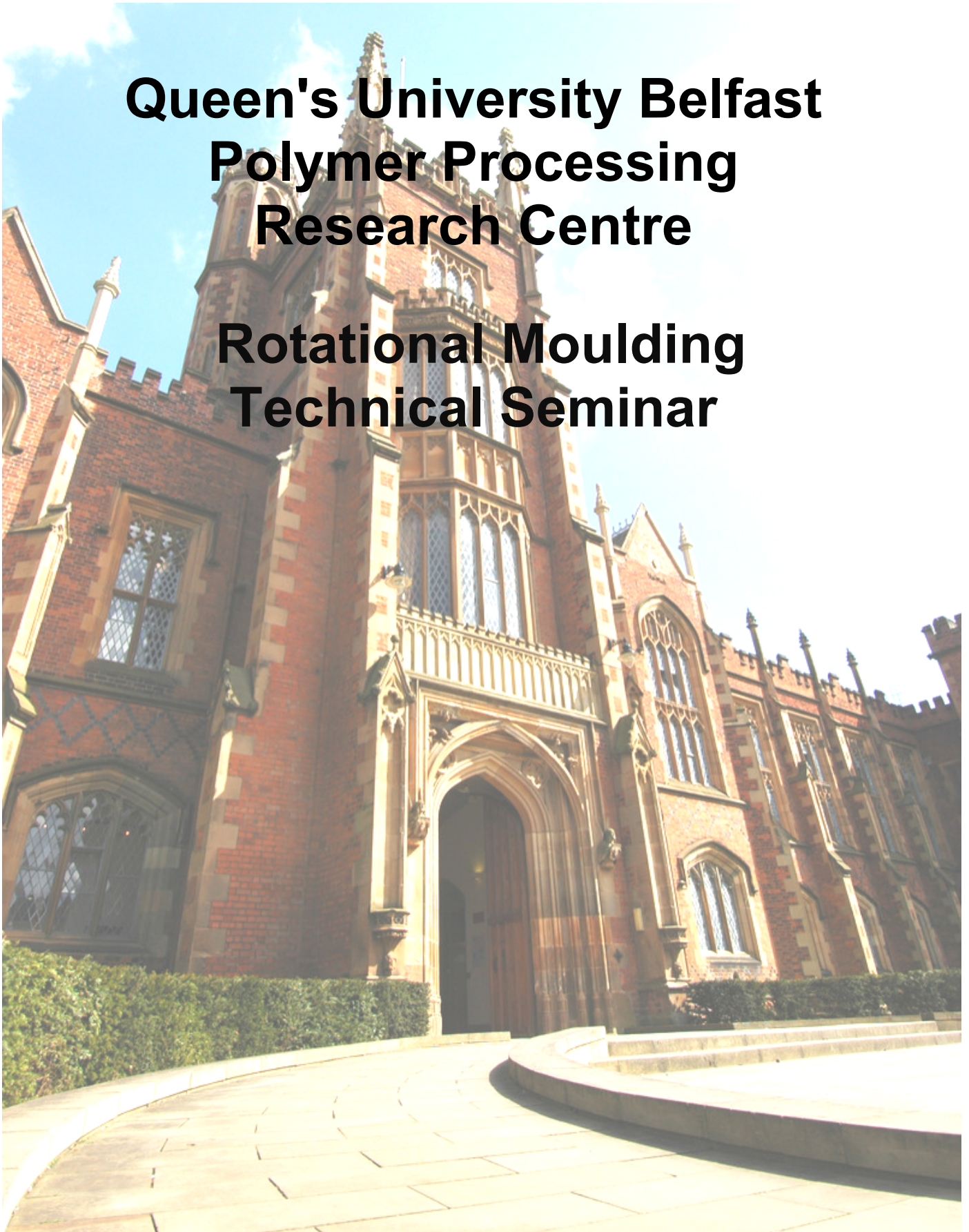




# **Queen's University Belfast Polymer Processing Research Centre**

## **Rotational Moulding Technical Seminar**





## Queen's University Polymer Processing Research Centre

**Title: Rotational Moulding Technical Seminar**

**Date: 10 and 11 May 2023**

**Venue: Sala conferenze CNA di Modena – Via F. Malavolti 27**

### Seminar Overview

This unique Queen's University technical rotational moulding seminar will begin with the fundamentals of the process with examples of new, exciting and award winning rotationally moulded parts from around the world. It will also include an in-depth study on the anatomy of the rotational moulding cycle, heating and cooling mechanisms, as well as the science behind the formation and removal of bubbles and pinholes as well as causes and cures for warpage and shrinkage.

The diverse range of rotomoulding machinery and moulds currently available to the industry will also be illustrated.



The following session will move onto *Rotational Moulding - Influences over the Process*, which will determine the effects on mechanical properties of different colour blending methods, as well as the mechanisms and control of shrinkage and warpage.

Additional areas covered include rotational moulding foaming methods, In-mould pressurisation, powder grinding / quality, advanced in-mould cooling techniques, process monitoring, new materials and future development trends for the industry.

### Seminar Presenter



Mark Kearns is Rotational Moulding Research Manager of the Polymer Processing Research Centre (PPRC) at Queen's University, Belfast, N. Ireland. A Chartered Chemical Engineer and Fellow of the Institution of Chemical Engineers, he has a master's degree in Rotational Moulding and has been involved in rotational moulding research and industrial support projects since the early 1990's. Following an initial two years as Deputy Production Manager in a UK rotomoulding factory, Mark has spent over 25 years at Queen's managing rotational moulding research and development projects for companies across Europe, Asia and North America. He has co-authored three books and over 60 papers & conference proceedings and lectures extensively worldwide. Mark has presented advanced seminars and keynote presentations on rotational moulding technology in Europe, South Africa, Australasia, Central & South America and the United States.



## **Rotomoulding Technical Seminar**

### **Day 1**

#### **PRESENTATIONS: '*Fundamentals of the Process*'**

- Background to the process
- Rotomoulding examples from around the world
- Rotomoulding Machinery types – pro's & con's
- Moulds for rotational moulding – venting / automation
- Unique rotomoulding designs and features.
- Heating and cooling mechanisms
- Monitoring and Control systems
- Comparison with other processes

#### **PRESENTATIONS: '*Influences over the Process*'**

- Anatomy of the rotomoulding cycle – heating/cooling
- Effect of heating and cooling on part / quality / cycletime
- Formation and removal of bubbles / pinholes
- Different pigment / additive blending technologies
- Effect of colour/blending method on mechanical properties/quality
- Shrinkage/warpage – effects and control
- Process monitoring and control – cycle optimisation.

#### **PRESENTATIONS: '*Materials influence on Rotomoulding*'**

- Material & process trends for rotomoulding
- Powder / MFI / Density - polyethylenes for rotomoulding / Recycling
- Factors effecting rotomoulding processing and properties.
- Engineering materials for rotomoulding
- Mechanical Properties – impact/stiffness/flow properties
- Rotomoulding with Foam and multi-layer processing

#### **PRESENTATIONS: '*Advanced Techniques*'**

- Mould Pressurisation – cycletime optimisation / bubble removal
- Internal Mould Cooling – methods / advantages
- Robotics and Automation
- Direct Tool Heating

#### ***'Rotomoulding Q & A'***