The University of Nottingham
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Advanced Materials Research Group
project summary

Project Title	Processing and characterisation of boron oxide doped quinternary phosphate based glasses and fibres
Researcher	Nusrat Sharmin
Project Summary	This project involves the production and characterisation of boron oxide (B_2O_3) doped novel phosphate based glasses and fibres. The current research is divided into several stages. 1. The first stage is a preliminary investigation on the effect of B_2O_3 (0-10 mol%) addition on the thermal characteristics (viscosity (η), thermal expansion coefficient (α) and thermal traces (T_g, T_c, T_m) of phosphate based glasses (PBG) in the system P_2O_5-CaO-MgO-Na_2O with phosphate contents fixed at 40, 45 and 50 mol%. 2. The second stage focuses on the effect of B_2O_3 addition on the ease of fibre drawing, mechanical properties and durability of the phosphate glass fibres. 3. The final aim of this project is to produce continuous soluble phosphate based glass fibres (PGF), which could be used as reinforcement for different resorbable polymers (such as Ploy-lactic acid) to make composites for different biomedical applications.