

Radioisotope tracer techniques for the study of multiphase flows

At iThemba LABS Positron Emission Particle Tracking (PEPT) is used to study dynamic physical processes and multiphase flow phenomena. Studies of these often turbulent systems contribute to understanding of fundamental flow behaviour and are of increasing interest in the current climate of reducing industrial wastes, improving process efficiencies, and developing design lead approaches to industrial systems. PEPT results are critical for the evaluation of computational models of such phenomena.

In the spirit of the previous ANSTT meetings we will update on recent research produced by the PEPT Cape Town laboratory, including aspects of our four key themes: instrumentation & detector development, radioisotope tracer techniques (physical and chemical), data acquisition & processing, and the applications of such measurements. Noting that such Advanced Nuclear Science, Technology, Techniques, and ultimately their applications, are large scale multidisciplinary endeavours there will be a strong focus on our role in personnel development and training involving researchers from a diverse range of backgrounds. We will offer thoughts into collaboration building around these techniques, particularly in the application phase space.

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