

Calorimetric approaches to interfacial (heterogeneous) enzyme reactions.

Isothermal calorimetry has a significant, and as of yet poorly exploited potential within chemical kinetics, and a particularly promising application is the characterization of enzyme activity. Thus, ITC provides a direct measure of the rate of any chemical reaction, and does not require any probes, reactant modifications or post-experiment practices. These assets are sometimes convenient in conventional enzymology, where the reaction takes place in the aqueous bulk, and they are particularly valuable in investigations of enzyme activity in colloidal systems. This is important because interfacial enzyme reactions are widespread both *in vivo* and within industrial applications, and other assay technologies are scarce.

The presentation will discuss some of the advantages and limitations of ITC within enzyme kinetics, and particularly focus on applications that are difficult to address with conventional methods. The latter includes calorimetric investigations of the hydrolysis of biomass; a process of key importance in upcoming bio-refineries producing sustainable fuels and materials.