ENGINEERING

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ABSTRACT

Measurement of Concentration Fluctuations in a Moving Stream. JEFFREY G. HIPPLER and THOMAS R. HANLEY, Department of Chemical Engineering, Rose-Hulman Institute of Technology, Terre Haute, Indiana 47803.—A conductivity cell and electronic signal processing circuit have been designed and built to measure the variance of concentration fluctuations in the exit stream of a mixed flow reactor. Experimental tests have shown that the variance measurements from a step input to a reactor were reproducible to within ten per cent, with a signal to noise ratio of greater than 100. Tests at different feed rates and agitation speeds in a mixed flow reactor produced a linear relationship between the logarithm of the concentration fluctuation variance and the reciprocal of the agitation level.