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## REPLACEMENT OF ALGEBRAIC LINEAR EQUATIONS BY FUZZY RELATION EQUATIONS IN CHEMICAL ENGINEERING

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In the study of estimation of flow rates in a chemical plant researchers use the linear equations. In several places these sets of linear equations do not yield a solution. Thus in this paper we replace the linear equations by the fuzzy relation equations and prove in case of

- (1) chemical plants with several inter linked units,
- (2) Flow distribution in a pipe network and
- (3) A stage counter current extraction unit.

The FRE are much better than the linear equations. In fact the value given by FRE is closer to the predicted solutions. Further whenever the FRE does not yield a solution fuzzy neural networks are used to estimate the flow rates.

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