ALSTOM has thrown a challenge problem related to the control of MIMO gasifier which is a nonlinear system. Quite a few researchers have tried different methods for control tuning and found that critical process transients such as pressure and temperature of syngas during specified load changes are not within the desired limits. This is mainly attributed to a very high order of the gasifier system. Due to this, efforts have been made to represent gasifier higher order models as a simplified lower order models. This paper focuses on identifying a reduced order transfer function models for gasifier with minimum IAE and ISE error criterion using Genetic Algorithm. The lower order transfer functions obtained using Genetic Algorithm is found to be superior to those obtained using RGA loop pairing and Algebraic method proposed respectively by Haryanto and Sivakumar et. al.

References
A Reduced Order Transfer Function Models for Alstom Gasifier using Genetic Algorithm


- S. N. Sivananandam, S. N. Deepa. A Comparative Study Using Genetic Algorithm and Particle Swarm Optimization for Lower Order System Modelling International Journal of the Computer, the Internet and Management Vol. 17. No. 3 pp 1-10, (September - December, 2009)
A Reduced Order Transfer Function Models for Alstom Gasifier using Genetic Algorithm

Index Terms

Computer Science  Control Systems

Keywords

Gasifier  Reduced Order Transfer Function  Algebraic Method  Genetic Algorithm  Mimo Systems.