

## Theoretical Investigation and Parametric Study of A Diffusion Absorption Refrigeration System

T. Al-Shemmeri, and Y.D. Wang\*

Yao-Dong Wang, PhD researcher in Mechanical Engineering, School of Engineering and Advanced Technology, Staffordshire University, PO Box 333, Beaconside, Stafford, ST18 0AD, United Kingdom  
Tel: 01785 353823(office); Fax: 01785 353552; Email: y.d.wang@staffs.ac.uk

**Abstract:** In this paper, based on the mass continuity, material continuity, and energy conservation principles, a mathematical model and a computing program is developed, which is used for the analysing the performance, parameters of a diffusion absorption refrigeration system. The calculated results are compared with the test data from the experiment. It shows that the model prediction is well coincident with the test data. The model is also used to analyse the effect of different parameters of the system to the COP. The results show that the effectiveness of gas heat exchanger is the most important factor to COP.

*Keywords:* diffusion absorption refrigeration, mathematical model, COP, experiment