

**Multi-objective optimisation of food refrigeration processes**

T.T.H. Luong and Q.T. Pham  
School of Chemical Engineering and Industrial Chemistry  
University of New South Wales  
Sydney 2052, AUSTRALIA  
Phone (61-2) 9385 5267  
Fax (61-2) 9385 5966  
Email [tuan.pham@unsw.edu.au](mailto:tuan.pham@unsw.edu.au)

During the refrigeration of food, often more than one objective has to be maximized or minimized: microbial growth, cost, energy costs, etc. Simultaneously several constraints must be obeyed: processing time, maximum or minimum temperature and air velocity, final product temperature, etc. A new optimisation method for dealing with this kind of *multiobjective constrained optimisation* is the use of genetic algorithms. The paper will describe some recent development in multi-objective optimisation and constraints handling methods and give some case studies of their applications in optimisation and model parameter determination.