兩階段等效平行機台於流程式生產系統批量流之研究

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摘 要

批量流的概念已被廣泛的應用在實務的生產中，並且能得到不錯的成效，然而批量流的相關研究上仍有發展的空間；因此，本研究將批量流的技術加入具平行機台的生產系統中，並且進行深入的研究與探討。 本研究中探討流程式生產批量流技術，在多產品兩階段的生產環境中，加入了整備時間、搬運時間和移運設備容量等考量，以總完工時間最小化為目標下，首先以數學規劃法建構此問題的模式以求得問題的最佳解，但隨著問題複雜度提高，最佳解的求得變的過於耗時，故本研究以粒子最佳化演算法(PSO)為基礎，發展一可求解間斷型問題的啟發式演算法，以快速尋求一近似最佳解，並與混合型基因演算法(HGA)進行比較，探討兩種啟發式演算法之求解能力。 本研究運用參數分析求得兩種啟發式演算法最適參數組合，分別測試其求解績效並分析差異，研究結果顯示混合型基因演算法具有較佳的求解能力；另外，在批量分割對總完工時間的實驗中，驗證批量分割所帶來的改善效益隨子批分割數增加而增加，但改善的幅度有逐漸遞減的趨勢。

關鍵詞 : 兩階段流程式生產系統 ; 批量流 ; 粒子最佳化演算法 ; 混合型基因演算法

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