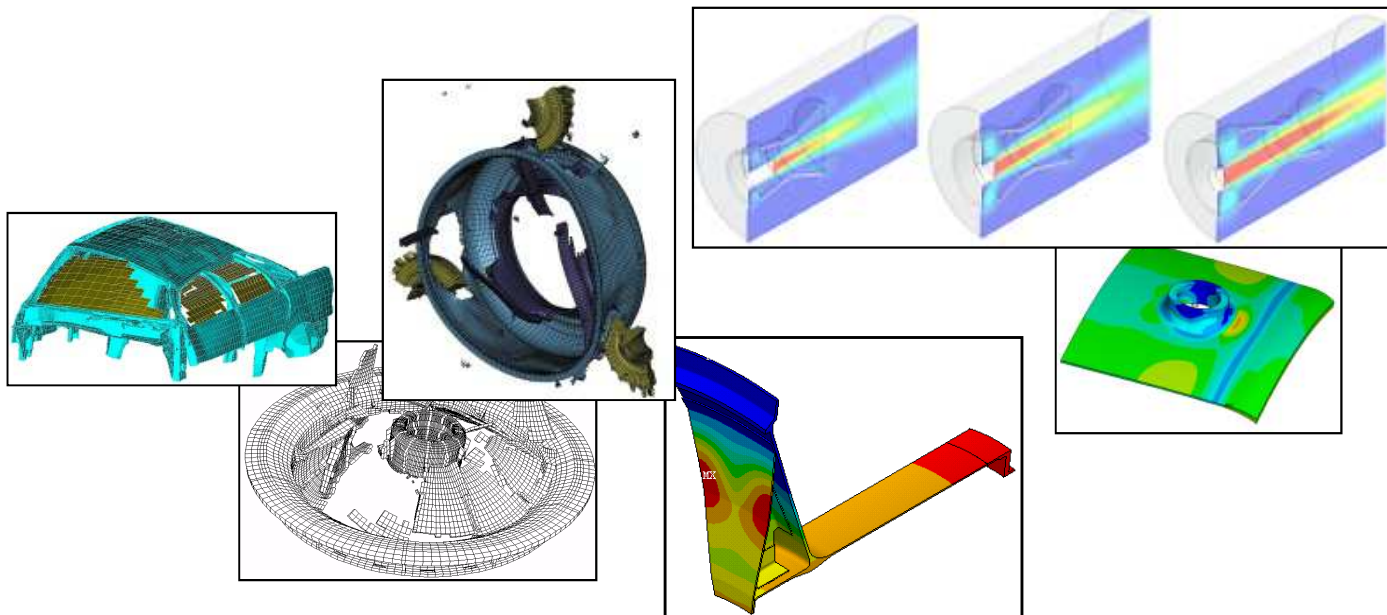


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歲昊科技 *FEA-Opt Technology*

SmartDOTM+

Smart Computing. Smart Design Optimization



Design Optimization/ System Integration/ Process Automation/Smart Computing
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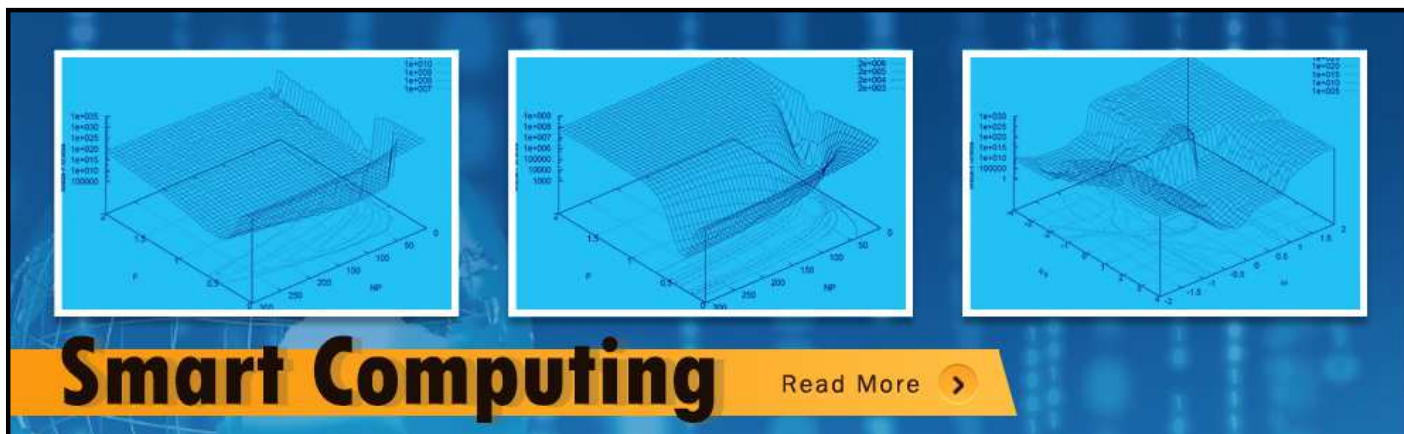
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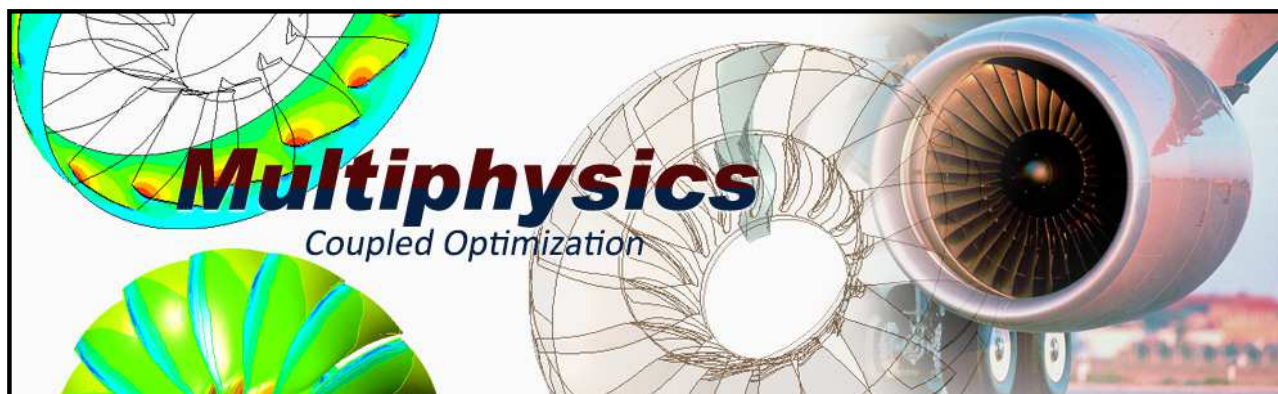
Smart Computing. Smart Design Optimization
智慧型設計最佳化系統與智慧運算平台

SmartDO特色與優勢

- "單鍵設計"最佳化技術(Fire-And-Forget Optimizer Technology)。透過SmartLink界面的簡單操作，30分鐘快速上手；無需進行參數敏感度探討(Parametric Sensitivity Study)。
- Tcl/tk可程式環境。革命性的SmartPET及PET工具允許用戶以前處理方式，在一般的文字輸入檔置入Tcl/tk的功能(即使第三方程式無任何可程式功能)。



- 尖端且具智慧之數學模式，適用於不同領域及行業。強力基因演算法(RGA)可進行尺寸，外型及拓樸同步最佳化(Concurrent Sizing, Shaping and Topology Optimization)。
- 長期應用於CAE及工業實務。提供國際級顧問及客制化服務，讓現有CAE軟體投資產生實質可量化效應。



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最佳化求解器 Optimizer

- 所有最佳化求解器具備總域直接搜尋功能(Direct Global Search) 。具強制收斂特色 (Absolute Descent) 。
- 微分梯度法 (Gradient-Based Direct Global Optimization)
 - Tunneling and Hill Climbing
 - Local Optimizer with DV Normalized [1]
 - Recursive Conjugate Feasible Direction Method (RCFDM)[1]
 - Smart Dynamic Search(SMDS)[1]
 - Applicable for differentiable problem. For both smooth problems or with noise [1,2]
- 強力基因演算法 (The Robust Genetic Algorithms, RGA)
 - Adaptive Penalty Function[1], Automatic Schema Representation[1], Absolute Descent[1]
 - Automatic Population and Generation Number Calculation[1]
 - Adaptive and Automatic Cross-Over Probability Calculation[1]
 - Concurrent Sizing, Shaping and Topology Optimization
 - Applicable for Binary(0/1) and Combinatory Optimization, for both differentiable and non-differentiable problems
- 設計變數(Design Variables)及束制條件(Constraints)沒有數量限制
- 可使用不合理設計(Infeasible Design)為初始設計，SmartDO會自動找到合理設計(feasible design)。

NOTE : 1. Proprietary algorithms. 2. Dealing with functions with local and minor to medium noise.

優化應用領域 Application

半導體封裝，材料擬合與優化：Semi Conductor : packaging, material fitting/optimization

連接器機械與電磁特性：Connector, mechanical and EMI

系統整合與自動化：System Integration & Automation

噴嘴，流道與噴射器：Nozzles & Ejectors

葉片與渦輪：Fan and turbine blades

複合材料：Laminate Composite

汽車輪圈：Car Wheel Rim

拓樸：Topology

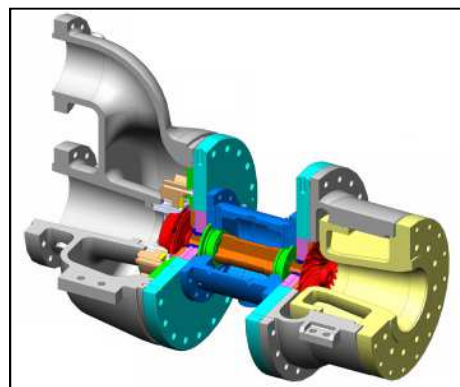
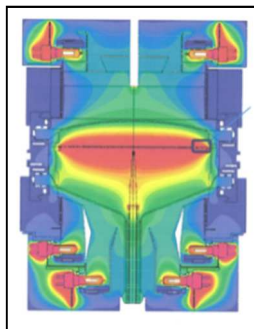
鋼結構：Steel Construction

結構輕量化：Light Weight Structure

加熱與散熱：Heating & Cooling

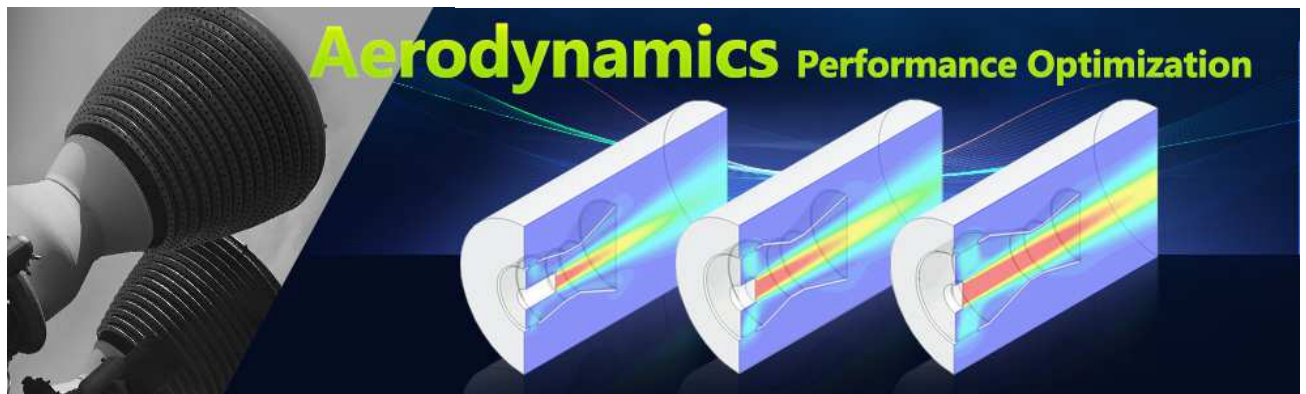
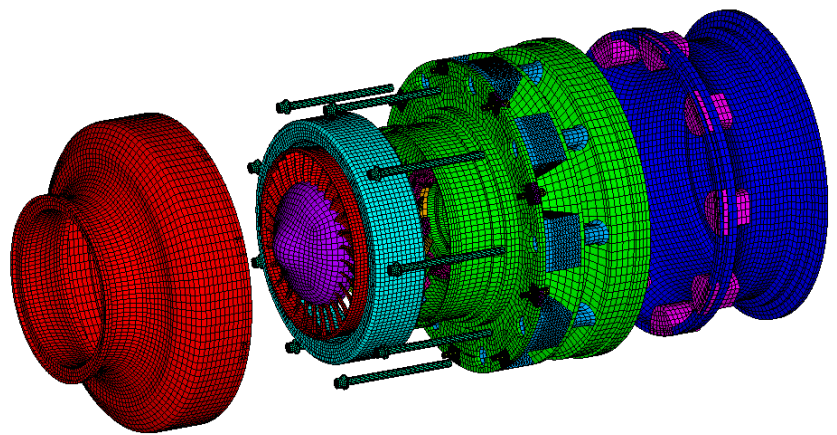
工具機：Machine Tools

馬達：Motor



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