

Hsieh, Shou-Shing
 Research Plan :

Project title	Sponsor	Period investigated	Budget (US\$)
Surface Rippling Phenomena During Laser Materials Processing-Primary Study	NSC*	08/01/84 - 07/31/85 3	192
Surface Rippling Phenomena During Laser Materials Processing-Transient Solutions	NSC	08/01/85 - 07/31/86	5,846
Surface Rippling Phenomena during Laser Materials Processing-Asymptotic Solutions	NSC	08/01/86 - 07/31/87 7	115
Mixed Convection of Opposing/ Assisting Flows in Vertical Channels with Discrete Asymmetrically Heating(I)	NSC	12/01/86 - 11/30/87	19,346
Thermal Analysis of Water Line Effects in the Continuous Moulding(I)	NSC	12/01/86 - 11/30/87	24,346
Mixed Convection of Opposing Assisting Flows in Vertical Channels with Discrete Asymmetrically Heating(II)	NSC	12/01/87 - 11/30/88	18,154
Thermal Analysis of Water Line Effects in the Continuous Moulding(II)	NSC	12/01/87 - 11/30/88	16,346
Separating Flow over Repeated Surface Mounted-Ribs(I)	NSC	04/01/89 - 03/31/90	16,731
Experimentally Study of Laminar Entrance Flow and Heat Transfer in Finned Tube Annuli(I)	NSC	08/01/89 - 07/31/90	14,346
Separating Flow over Repeated Surface Mounted-Ribs(II)	NSC	02/01/90 - 01/31/91	16,577
Experimentally Study of Laminar Entrance Flow	NSC	08/01/90 - 07/31/91	16,308

and Heat Transfer in Finned Tube Annuli(II)			
Heat Transfer and Flow Characteristics of Flow over Cylinders Arranged in Cruciform(I)	NSC	02/02/91 - 01/31/92	12,962
Nucleate Boiling Characteristics of R-114, Distilled Water and R-134a on Plain and Rib-Roughened Tube Geometries(I)	NSC	02/01/92 - 01/31/93	36,231
Heat Transfer and Flow Characteristics of Flow over Cylinders Arranged in Cruciform(II)	NSC	02/01/92 - 01/31/93	12,692
Developing 3-D Laminar Mixed Convection in a Circular Tube Inserted with Longitudinal Inserts	NSC	02/01/93 - 01/31/94	20,885
Nucleate Boiling Characteristics of R-114, Distilled Water and R-134a on Plain and Rib-Roughened tube Geometries(II)	NSC	02/01/93 - 01/31/94	27,735
Nucleate Pool Boiling on Enhanced Tubes	NSC	02/01/93 - 07/31/95	26,615
Enhanced Heat Transfer from Plasma Coating Tubes	NSC	02/01/93 - 07/31/94	19,988
Thermal Hydraulics of Evaporator and Condenser in Air Conditioning Systems	NSC	02/01/93 - 07/31/94	4,500
Thermal Hydraulics of Evaporator and Condenser in Air Conditioning Systems (Test Facility)	NSC	02/01/93 - 07/31/94	57,692
Thermal Hydraulics of Evaporator and Condenser in Air Conditioning Systems (Phase II)	NSC	08/01/95 - 07/31/96	70,000

3-D Turbulent Convection in a Circular Tube Inserted with Longitudinal Inserts	NSC	08/01/95 - 07/31/96	15,000
Thermal Hydraulics of Evaporator and Condenser in Air Conditioning Systems (Phase III)	NSC	08/01/96 - 07/31/97	60,000
Impingement Cooling on Rotating Rib Roughened Ducts	NSC	08/01/96 - 07/31/97	50,000
Thermal Hydraulics of Evaporator and Condenser in Air Conditioning Systems (Phase IV)	NSC	08/01/97 - 07/31/98	32,000
Impingement Cooling on Rotating Rib Roughened Ducts (II)	NSC	08/01/97 - 07/31/98	40,000
Impingement Cooling on Rotating Rib Roughened Ducts (III)	NSC	08/01/98 - 07/31/99	40,000
Experimental Study in Vertical Tubes with Strip-Type Inserts	NSC	08/01/98 - 07/31/99	16,000
Impingement Cooling in a Square Duct with Different Roughened Surfaces from Different Arrays of Jet	NSC	08/01/99 - 07/31/2000	40,000
Saturated Nucleate Pool Boiling from Plasma Coating with Wire Coil Enhanced Tubes	NSC	08/01/99 - 07/31/2000	32,180
Impingement Cooling in a Square Duct with Different Roughened Surfaces from Different Arrays of Jets (II)	NSC	08/01/00 - 07/31/01	40,000
Saturated Nucleate Pool Boiling from Plasma Coating with Wire Coil Enhanced Tubes (II)	NSC	08/01/00 - 07/31/01	32,200
Impingement Cooling in a	NSC	08/01/00 -	34,700

Square Duct with Different Roughened Surfaces from Different Arrays of Jets (III)		07/31/02	
Saturated Nucleate Pool Boiling from Plasma Coating with Wire Coil Enhanced Tubes (III)	NSC	08/01/01 - 07/31/02	33,520
Micro-Electro Mechanical System Heat Transfer	NSC	10/01/01 - 07/31/04	170,000
Microfuel Cell Design and Fabrication (I)	NSC	08/01/02 - 07/31/03	39,542
Thermalhydraulics Study of a Microfuel Cell (I)	NSC	08/01/02 - 07/31/03	23,028
Thermalhydraulics Study of Spray Cooling (I)	NSC	08/01/02 - 07/31/05	68,571
Thermalhydraulics Study of Spray Cooling (II)	NSC	08/01/03 - 07/31/04	22,800
Microfuel Cell Design and Fabrication (II)	NSC	08/01/03 - 07/31/04	32,000
Thermalhydraulics Study of a Micro PEM Fuel Cell (II)	NSC	08/01/03 - 07/31/04	23,200
PEMFC Design and Fabrication and Cell Stack Packaging (I)	NSC	08/01/04 - 07/31/05	51,000
Thermal Performance Study of PEMFCs and Stack (I)	NSC	08/01/04 - 07/31/05	45,000
Thermalhydraulics Study of Spray Cooling (III)	NSC	08/01/04 - 07/31/05	21,000
PEMFC Design and Fabrication and Cell Stack Packaging (II)	NSC	08/01/05 - 07/31/06	40,875
Thermal Performance Study of PEMFCs and Stack (II)	NSC	08/01/05 - 07/31/06	40,469
Stretching and Deforming DNA Molecules in Micro Flows	NSC	08/01/05 - 07/31/06	30,781
Convective heat transfer in liquid microchannels with/without	NSC	08/01/05 - 07/31/06	45,032

electrokinetic (electroosmotic) effect (I)			
Convective Heat Transfer in Liquid Microchannels with/without Electrokinetic (Electroosmotic) effect (II)	NSC	08/01/06-07/31/07	45,000
A Novel Design and Microfabrication for a Micro PEMFC Stack (III)	NSC	08/01/06-07/31/07	44,000
MicroFabrication and Performance Test of a Micro PEMFC Stack (III)	NSC	08/01/06-07/31/07	40,000
Hydrodynamic Stretching and Deformation of DNA Molecules with Complex Fluids in Microfluidics	NSC	08/01/06-07/31/09	92,000
Convective Heat Transfer in Liquid Microchannels with/without Electrokinetic (Electroosmotic) Effect (III)	NSC	08/01/07-07/31/08	33,700
Microfabrication of MicroPEMFC systems	NSC	08/01/07-07/31/08	40,300
Micro PEM Fuel Cell stack Performance and Durability Study	NSC	08/01/07-07/31/08	44,200
Demonstration and Analysis of Micro PEM Fuel Cell Stack Performance, Assembling and Durability Tests	NSC	08/01/08-07/31/09	42,000
Microspray Cooling Technology for Microelectronics Cooling	NSC	08/01/08-07/31/11	127,000
Micro PEM Fuel Cell Stack System (including microreformer) Fabrication and Performance Analysis	NSC	08/01/08-07/31/09	37,000
Thermal Characteristics of Helical Type Heat Exchangers	EC*	12/01/84 - 11/30/86	74,812

Temperature Distribution Predication During Arc Welding	MIDC*	11/01/85 - 06/30/86	10,920
Critical Heat Flux/Limiting Quality Investigations	INER*	01/01/86 - 06/30/87	18,246
Heat Transfer and Friction Factor Measurements in Ducts with Staggered/in Line Ribs(I)	DSTC*	05/01/86 - 04/30/87	55,769
Carbide Precipitation and Size Predication of Crystal Growth	MIDC	07/01/86 - 06/30/87	8,862
Transient Thermal Analysis of the Water Line Effect in the Die Casting Dies-Primary Study	MIDC	07/01/86 - 06/30/87	13,221
Numerical Prediction of PPT Carbide During Welding	MIDC	07/01/86 - 04/06/87	10,962
Transient Thermal Analysis of the Water Line Effect in the Die Casting(I)	MIDC	07/01/86 - 06/30/87	7,692
Solidification of Continuous Moulding	CSC*	12/01/86 - 11/30/87	14,215
Numerical Prediction of Temperature Distribution in Continuous Moulding	MIDC	07/01/87 - 06/30/88	9,000
Transient Thermal Analysis of the Water Line Effect in the Die Casting(II)	MIDC	07/01/87 - 06/30/88	7,692
Heat and Mass Transfer in LiCl ₂ Absorption Systems	ERRL*	09/01/87 - 06/30/88	14,208
Solar Collector Efficiency of Conventional Solar Heating Systems in Taiwan	ERRL	07/01/87 - 06/30/88	18,846
Thermal Design of High Performance Heat Exchangers	Tung-Zorng Co.	08/01/87 - 11/30/88	46,154
Computer Aided Mould	Philips	09/01/87 -	71,037

Cavity Thermal Design for Thermosetting Materials	Ltd.	08/31/89	
Heat Transfer and Friction Factor Measurements in Ducts with Staggered/in Line Ribs(II)	DSTC	08/01/87 - 0/31/88	43,077
Nucleate Pool Boiling on GEWA-T Enhanced Tubes(I)	ERRL	07/01/89 - 06/30/90	18,846
Heat Transfer and Friction Factor Measurements in Ducts with Staggered/in Line Ribs(III)	DSTC	11/01/88 - 10/31/89	34,231
Experiment Study of Augmentation of Tube-Side Heat Transfer in a Cross Flow Heat Exchangers(I)	CSC	01/01/89 - 06/30/90	27,692
Heat Transfer Coefficient Measurements in Orthogonally Rotating Duct with Turbulators(I)	DSTC	04/01/90 - 03/31/91	146,538
Evaporation Losses, Causes and Their Predications in Oil Storage Tanks(I)	CPC	01/01/90 - 12/31/90	40,880
Evaluation of Coal Gasification Process in Combined Cycles	ERRL	07/01/90 - 01/31/91	19,231
Evaluation of Thermal Performances of Geothermal Energy Using in Taiwan Power Co.	TPC*	10/01/90 - 06/30/91	33,846
Nucleate Pool Boiling on GEWA-T Enhanced Tubes(I)	ERRL	07/01/90 - 06/30/91	19,200
Experimental Study of Augmentation of Tube-Side Heat Transfer in a Cross Flow Heat Exchangers(II)			