PROJECT ADMINISTRATION DATA SHEET

[X]	ORIGINAL
[ ]	REVISION NO. _____

oject No. __E-24-630__   DATE: __3/16/81__

oject Director: __Dr. J. J. Bartholdi III__   School/Xxxx __ISyE__

onsor: __National Science Foundation; Washington, D. C. 20550__

pe Agreement: __Grant No. ECS-8026080__

ard Period: From __2/15/81__ To __7/31/82*__ (Performance) __-----__ (Reports)

onsor Amount: __$4,651__   Contracted through:

st Sharing: __$8,139 (E-24-346)__   GTRI/GXXX

tle: __Staffing Problems and Symmetric Interger Programs__

MINISTRATIVE DATA   OCA CONTACT __Duane Hutchison__ x 4820

Sponsor Technical Contact: __Mr. Abraham H. Haddad, NSF Program Officer; System Theory__ __& Operations Research; Division of Electrical, Computer, and Systems Engineering; Directorate__ __For Engineering and Applied Science; NSF; Washington, D. C. 20550; 202/357-9618__

Sponsor Admin./Contractual Contact: __Mr. Hugh L. Lyon, NSF Grants Official; Section II,__ __AAEO/EAS Branch; Division of Grants and Contracts; Directorate for Administration;__ __National Science Foundation; Washington, D. C. 20550; 202/357-9602__

ports: See Deliverable Schedule   Security Classification: __None__

fense Priority Rating: __None__

STRICTIONS

e Attached __NSF__ Supplemental Information Sheet for Additional Requirements.

avel: Foreign travel must have prior approval - Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of $500 or 125% of approved proposal budget category.

quipment: Title vests with __GIT__

OMMENTS: __* Includes the usual six (6) month unfunded flexibility period.__

SPONSORED PROJECT TERMINATION SHEET

Date ___June 9, 1983___

Project Title: Staffing Problems and Symmetric Integer Programs

Project No: E-24-630

Project Director: Dr. J. J. Bartholdi III

Sponsor: National Science Foundation

Effective Termination Date: ___7-31-82___

Clearance of Accounting Charges: ___7-31-82___

Grant/Contract Closeout Actions Remaining:

- [ ] Final Invoice and Closing Documents
- [X] Final Acctg. ~~Fiscal~~ Report   FCTR
- [X] Final Report of Inventions
- [X] Govt. Property Inventory & Related Certificate
- [ ] Classified Material Certificate
- [ ] Other _____

Assigned to: ___Industrial Systems Engineering___ (School/~~Laboratory~~)

COPIES TO:

Administrative Coordinator
Research Property Management
Accounting
Procurement/EES Supply Services

Research Security Services
Reports Coordinator (OCA)
Legal Services (OCA)
Library

EES Public Relations (2)
Computer Input
Project File
Other ___Project Director___

FINAL PROJECT REPORT
NSF FORM 98A

PLEASE READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING

PART I—PROJECT IDENTIFICATION INFORMATION
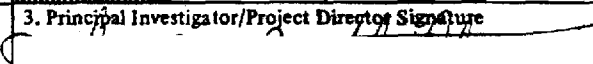
1. Institution and Address	2. NSF Program	3. NSF Award Number
Georgia Institute of Technology Atlanta, GA 30332	Research Initiation	ECS-8026080
	4. Award Period From 2/15/81 To 7/31/82	5. Cumulative Award Amount $4,651

6. Project Title

Cyclic Staffing and Symmetric Integer Progams

PART II—SUMMARY OF COMPLETED PROJECT *(FOR PUBLIC USE)*

We studied a wide class of periodic scheduling problems. They were shown to be "certifiably difficult" (in a formal sense), which justifies heuristic, non-optimal solution techniques. Accordingly we developed an efficient (polynomial time) solution algorithm that exploits the periodic symmetry of this class of problems.

Some powerful new ideas for integer programming were developed, including the exploitation of symmetry and non-trivial but quick round-off schemes.

PART III—TECHNICAL INFORMATION *(FOR PROGRAM MANAGEMENT USES)*

1. ITEM *(Check appropriate blocks)*	NONE	ATTACHED	PREVIOUSLY FURNISHED	TO BE FURNISHED SEPARATELY TO PROGRAM	
				Check (✓)	Approx. Date
a. Abstracts of Theses	x				•
b. Publication Citations		x			
c. Data on Scientific Collaborators			x		
d. Information on Inventions	x				
e. Technical Description of Project and Results		x			
f. Other *(specify)*					

2. Principal Investigator/Project Director Name *(Typed)*	3. Principal Investigator/Project Director Signature	4. Date
John J. Bartholdi III		9 May 1983

Publications

John J. Bartholdi, III and A. S. Rosenthal (1979); "Periodic Scheduling of a Material Handling System," Proceedings of IEEE Conference on Decision and Control.

John J. Bartholdi, III (1981); "A Guaranteed Accuracy Round-off Algorithm for Cyclic Scheduling and Set Covering," Operations Research, 29(3).