08:31:54 OCA PAD INITIATION - PROJECT HEADER INFORMATION 06/08/89

Active

Project #: G-33-690 Cost share #: Rev #: 0
Center # : 10/24-6-R6524-1A0 Center shr #: OCA file #:
Work type : RES
Contract#: 5 R01 GM40715-02 Mod #: Document : GRANT
Prime #: Contract entity: GTRC

Subprojects ? : N
Main project #:

Project unit: CHEM Unit code: 02.010.136
Project director(s):
BROWNER R F CHEM (404)894-4020

Sponsor/division names: DHHS/PHS/NIH / NATL INSTITUTES OF HEALTH
Sponsor/division codes: 108 / 001

Award period: 890701 to 900630 (performance) 900930 (reports)

Sponsor amount	New this change	Total to date
Contract value	89,226.00	89,226.00
Funded	89,226.00	89,226.00
Cost sharing amount		-0.00

Does subcontracting plan apply ?: N

Title: FUNDAMENTAL STUDIES WITH A MAGIC-LC/FT-IR INTERFACE FOR BIOANALYTICAL...

PROJECT ADMINISTRATION DATA

OCA contact: Kathleen R. Ehlinger 894-4820

Sponsor technical contact

DR. AMERICO RIVERA, PROGRAM ADMIN.
(301)496-7001
NAT INST OF GENERAL MEDICAL SCIENCES
NATIONAL INSTITUTES OF HEALTH
BETHESDA, MD 20892

Sponsor issuing office

ANN CALURE, GRANTS MANAGEMENT
(301)496-7166
NIH, WESTWOOD BLDG,RM 938
5333 WESTBARD AVENUE
BETHESDA, MD 20892

Security class (U,C,S,TS) : U ONR resident rep. is ACO (Y/N): N
Defense priority rating : N/A N/A supplemental sheet
Equipment title vests with: Sponsor GIT X
NONE PROPOSED.

Administrative comments -
SECOND YEAR OF A FIVE YEAR GRANT.

GEORGIA INSTITUTE OF TECHNOLOGY
OFFICE OF CONTRACT ADMINISTRATION

NOTICE OF PROJECT CLOSEOUT

Closeout Notice Date 06/29/90

oject No. G-33-690 Center No. 10/24-6-R6524-1A0

oject Director BROWNER R F School/Lab CHEM

onsor DHHS/PHS/NIH/NATL INSTITUTES OF HEALTH

ntract/Grant No. 5 R01 GM40715-02 Contract Entity GTRC

ime Contract No.

tle FUNDAMENTAL STUDIES WITH A MAGIC-LC/FT-IR INTERFACE FOR BIOANALYTICAL...

fective Completion Date 900630 (Performance) 900930 (Reports)

oseout Actions Required:	Y/N	Date Submitted
Final Invoice or Copy of Final Invoice	X	
Final Report of Inventions and/or Subcontracts	N	
Government Property Inventory & Related Certificate	N	
Classified Material Certificate	N	
Release and Assignment	N	
Other	N	

CommentsCONTINUED BY G-33-685.

oproject Under Main Project No.

ntinues Project No.

stribution Required:

Project Director	Y
Administrative Network Representative	Y
GTRI Accounting/Grants and Contracts	Y
Procurement/Supply Services	Y
Research Property Managment	Y
Research Security Services	N
Reports Coordinator (OCA)	Y
GTRC	Y
Project File	Y
Other	N
	N

2. Research Performed During Current Budget Year.

Several studies have been carried out in the current budget period. The efficiency of recovery of the MAGIC-LC/FT-IR spectrometric interface has been continued, and the device consistently appears to operate at an efficiency of approximately 35%. This is a 10% increase over what was measured in the previous budget period. One interesting development is that the device appears to be more efficient as the analyte concentration decreases. All studies have been performed at high sample loadings, and although some sample is lost in the skimmer chambers, and some is lost to the pumps, it is evident that depositions cannot exceed a certain mass. When a sufficiently large deposition has formed, it is clear that attempts to increase the size of the deposition fail. Tests have shown that beyond a critical mass, sample depositions are ablated by additional sample. It is estimated that small analyte concentrations have recovery efficiencies approaching 50%. Attempts have been made to produce an "on-the-fly" interface, so that analyte particle spectra are collected before deposition. That is, the spectra are collected as the particles flow through a spectrometer cell. Attempts to implement this interface were unsuccessful, as the particle beam density is too low for a cell of reasonable dimensions. These results were confirmed with the results of the laser beam anemometry. Efforts have continued to focus on off-line applications, as the commercial development of on-line systems is currently underway by two major corporations, Perkin-Elmer and Hewlett-Packard, under licensing arrangements with the Georgia Institute of Technology and the University of Georgia. The focus of our present work has been the development of greater understanding of fundamentals of the LC/FT-IR process, in order to allow optimum practical performance under realistic analytical conditions. For this reason, we have attempted to avoid unnecessary duplication of the efforts of the commercial companies.

3. Research Involving Human Subjects.

Not applicable.

4. Research Involving Vertebrate Animals.

Not applicable.

5. Publications.

de Haseth, J. A. and R. M. Robertson, "MAGIC-LC/FT-IR: A Viable Interface for HPLC and FT-IR Spectrometry", Microchemical Journal, 40, 77-93 (1989).

Robertson, R. M., J. A. de Haseth and R. F. Browner, "MAGIC-LC/FT-IR Spectrometry with Buffered Solvent Systems", Applied Spectroscopy, 44, 8-13 (1990).