1 Budget Justification -FY04 (4-1-04 to 3-31-05)

A.1-4. Four faculty supported for two summer months each to perform research full-time and to direct students. The summer commitments are:
(a) L. Cremaldi: BABAR 70%, CMS 30%, 05% MUON
(b) R. Kroeger: BABAR 100%
(c) D. Summers: BABAR 60%, CMS 10%, MUON 30%
( Academic year support, with reduced teaching loads, is provided by the University.)

A.6. Two months summer salary for Dr. David Sanders, Research Scientist/Computer System Manager. Dr. Sanders is supported 10 months by the physics department. He spends greater than 50% time on the UMHEP computing, RAID Arrays, supporting UMiss systems at SLAC, performing physics analyses. Two months support is requested so he can continue his support of BABAR (systems, RAID arrays, etc.), some software development for CMS, and bring up our D0/CMS computing. Sander’s also supports test beam operations at CERN for our group. In his absence for research purposes, the department pays a student for backup (13.2K per yr.). The Department contributes about 5 months of Dr. Sander’s salary, and with the student totals an in-kind contribution of $33K + 25.04%. fringe.

B.1 Three postdoctoral associate are supported full-time:
(a) J. Bauer: 100% BABAR
(b) H. Zhao: 100% BABAR
(c) R. Godang: 90% BABAR; 10% MUON

B.2 Support for CMS Machinist/Designer

B.3 One graduate student, V. Eschenburg, is doing his dissertation in residence at SLAC and needs full support. One dissertation student, E. Aitala, is supported by the University and no support is requested for him. Aruniva Roy and Bashali Ray are working 50% department and 50% DOE, and will need future support upon full commitment to HEP.

B.4 Two undergraduate students receive hourly compensation to operate the high energy physics computer farm and assist in data analysis and detector construction.

C. Fringe benefit rate: 25.04% of salary for Senior Personnel and Post Doctoral Associates; 3% of salary and wages for undergraduate and graduate students.
(All salaries and wages and fringe benefits are consistent with guidelines established by the University.)
D. Permanent Equipment 6 dual processor CPU’s ($1500 ea) will be purchased for
the D0/CMS Linux Computer farm. A RAID array ($2.5K ea) will be networked to
the farm and analysis work stations (BaBar,D0,CMS) through a high speed switch
($1K). 12500

The University is providing an added cost sharing of $12500 in equipment matching,
$4500 Office of Research, $4000 School of Arts&Sciences, and $4000 Department
of Physics and Astronomy. The purchase of this equipment is to follow guidelines
mentioned in budget item D.

E.1 Domestic Travel (4 faculty, 1 research scientist, 3 postdocs, 1 student)
( All domestic travel costs are based on average cost of such trips in FY00 corrected
for inflation and are consistent with university policy and regulations. )

BABAR RELATED:
(a) Supplement for student/postdoc for 12 months at SLAC 6000
(b) Three physicists at three national meetings (DPF,IEEE) to present papers 3000
(c) Support for three faculty per two collaboration meetings. 7200
(d) Support for faculty members to participate in BaBar shift work and consulta-
tion. 4260

CMS RELATED:
(a) Two physicists to US CMS collaboration meetings 3000
(b) D0 - one physicist to D0 meetings and shifts 5000
(c) CMS Related travel - 2 physicist 4000

E.2 Foreign Travel (3 faculty, 1 research scientist, 3 postdocs)
( All foreign travel costs are based on average cost of such trips in FY00 corrected
for inflation and are consistent with university policy and regulations. )

BABAR RELATED:
(a) One collaboration meeting for two physicists 3000

CMS RELATED:
(a) Two CMS collaboration meetings/year at CERN for two physicists 3000
(b) One physicist to participate in the CERN test beam run 2000
(c) One PIXEL technical meetings - one physicist 2000
(d) CMS Related travel - 2 physicist 3000

G.1 Materials and Supplies
(a) Materials (tapes, supplies, software, licenses) for BABAR analyses 3743
G.6 OTI - Other Direct Costs

(a) Long distance charges – conference calls three a week for BABAR D0, CMS, MUON; Shipping and mailing charges. 

1000

(b) Tuition remission is requested for each graduate research assistant at the University's standard rate of $1958 per semester (2 students @ 2 semesters per student @ $1958 per semester = $7832)

7832

Indirect costs are calculated in accordance with The University of Mississippi rate agreement with DHHS, dated February 3, 1999. Indirect costs for research are calculated at 43.5% of Total Direct Costs less equipment, tuition remission, and the portion of each subgrant or subcontract in excess of $25,000. Under a special agreement with the University an indirect cost rate of 34% is applied on modified total direct costs except travel, on which a 10% rate is applied.
1 Budget Justification -FY05 (4-1-05 to 3-31-06)

A.1-4. Four faculty supported for two summer months each to perform research full-time and to direct students. The summer commitments are:
(a) L. Cremaldi: BABAR 60%, CMS 40%, 00% MUON
(b) R. Kroeger: BABAR 100%
(c) D. Summers: BABAR 60%, CMS 10%, MUON 30%
(d) B. Quinn: D0/CMS 100%
( Academic year support, with reduced teaching loads, is provided by the University.)

A.6. Two months summer salary for Dr. David Sanders, Research Scientist/Computer System Manager. Dr. Sanders is supported 10 months by the physics department. He spends greater than 50% time on the UMHEP computing, RAID Arrays, supporting UMiss systems at SLAC, performing physics analyses. Two months support is requested so he can continue his support of BABAR (systems, RAID arrays, etc.), some software development for CMS, and bring up our D0/CMS computing. Sander’s also supports test beam operations at FNAL/CERN for our group. In his absence for research purposes, the department pays a student for backup (13.2Kper yr.). The Department contributes about 5 months of Dr. Sander’s salary, and with the student totals an in-kind contribution of $33K + 25.04%. fringe.

B.1 Three postdoctoral associate are supported full-time:
(a) H. Zhao: 100% BABAR
(b) R. Godang: 90% BABAR; 10% MUON
(c) post doc 100% D0/CMS

B.3 One graduate student, V. Eschenburg, is doing his dissertation in residence at SLAC and needs full support. A second student working on D0 or BaBar analyses will phase in.

B.4 Two undergraduate students receive hourly compensation to operate the high energy physics computer farm and assist in data analysis and detector construction.

C. Fringe benefit rate: 25.04% of salary for Senior Personnel and Post Doctoral Associates; 3% of salary and wages for undergraduate and graduate students.
( All salaries and wages and fringe benefits are consistent with guidelines established by the University.)

E.1 Domestic Travel (3 faculty, 1 research scientist, 3 postdocs, 1 student)
( All domestic travel costs are based on average cost of such trips in FY00 corrected
for inflation and are consistent with university policy and regulations.

**BABAR RELATED:**
1. (a) Supplement for student/postdoc for 12 months at SLAC 8000
2. (b) Support for faculty for collaboration meetings and shifts. 6000

**CMS RELATED:**
1. (a) Physicists to US CMS collaboration meetings 8000

**E.2 Foreign Travel (3 faculty, 1 research scientist, 3 postdocs)**
(All foreign travel costs are based on average cost of such trips in FY00 corrected for inflation and are consistent with university policy and regulations.)

**BABAR RELATED:**
1. (a) One collaboration meeting for two physicists 4000

**CMS RELATED:**
1. (a) CMS collaboration meetings at CERN for two physicists 4000
2. (b) Physicists to participate in CERN testing. 2000

**G.1 Materials and Supplies**
1. (a) Materials (tapes, supplies, software, licenses) for BaBaR, CMS analyses 3876

**G.2 Publication Costs**
1. 1000

**G.6 OTI - Other Direct Costs**
1. (a) Long distance charges – conference calls three a week for BABAR D0, CMS, MUON; Shipping and mailing charges. 1000
2. (b) Tuition remission is requested for each graduate research assistant at the Universitys standard rate of $1958 per semester (2 students @ 2 semesters per student @ $1958 per semester = $7832) 7832

*Indirect costs are calculated in accordance with The University of Mississippi rate agreement with DHHS, dated February 3, 1999. Indirect costs for research are calculated at 43.5% of Total Direct Costs less equipment, tuition remission, and the portion of each subgrant or subcontract in excess of $25,000. Under a special agreement with the University an indirect cost rate of 34% is applied on modified total direct costs except travel, on which a 10% rate is applied.*
1  Budget Justification -FY06 (4-1-06 to 3-31-07)

A.1-4. Four faculty supported for two summer months each to perform research full-time and to direct students. The summer commitments are:
(a) L. Cremaldi: BABAR 60%, CMS 40%, 00% MUON
(b) R. Kroeger: BABAR 100%
(c) D. Summers: BABAR 60%, CMS 10%, MUON 30%
(d) B. Quinn: D0/CMS 100%
( Academic year support, with reduced teaching loads, is provided by the University.)

A.6. Two months summer salary for Dr. David Sanders, Research Scientist/Computer System Manager. Dr. Sanders is supported 10 months by the physics department. He spends greater than 50% time on the UMHEP computing, RAID Arrays, supporting UMiss systems at SLAC, performing physics analyses. Two months support is requested so he can continue his support of BABAR (systems, RAID arrays, etc.), some software development for CMS, and bring up our D0/CMS computing. Sanders's also supports test beam operations at FNAL/CERN for our group. In his absence for research purposes, the department pays a student for backup (13.2Kper yr.). The Department contributes about 5 months of Dr. Sander's salary, and with the student totals an in-kind contribution of $33K + 25.04%. fringe.

B.1 Three postdoctoral associate are supported full-time:
(a) H. Zhao: 100% BABAR
(b) R. Godang: 90% BABAR; 10% MUON
(c) post doc 100% D0/CMS

B.3 One graduate student, V. Eschenburg, is doing his dissertation in residence at SLAC and needs full support. A second student working on D0 or BaBar analyses will phase in.

B.4 Two undergraduate students receive hourly compensation to operate the high energy physics computer farm and assist in data analysis and detector construction.

C. Fringe benefit rate: 25.04% of salary for Senior Personnel and Post Doctoral Associates; 3% of salary and wages for undergraduate and graduate students.
( All salaries and wages and fringe benefits are consistent with guidelines established by the University.)

E.1 Domestic Travel (3 faculty, 1 research scientist, 3 postdocs, 1 student)
( All domestic travel costs are based on average cost of such trips in FY00 corrected
\textit{for inflation and are consistent with university policy and regulations.}

**BABAR RELATED:**
(a) Supplement for student/postdoc for 12 months at SLAC \hspace{1cm} 8000  
(b) Support for faculty for collaboration meetings and shifts. \hspace{1cm} 6000

**CMS RELATED:**
(a) Physicists to US CMS collaboration meetings \hspace{1cm} 8000

**E.2 Foreign Travel (3 faculty, 1 research scientist, 3 postdocs)**
( All foreign travel costs are based on average cost of such trips in FY00 corrected for inflation and are consistent with university policy and regulations. )

**BABAR RELATED:**
(a) One collaboration meeting for two physicists \hspace{1cm} 4000

**CMS RELATED:**
(a) CMS collaboration meetings at CERN for two physicists \hspace{1cm} 4000  
(b) Physicists to participate in CERN testing. \hspace{1cm} 2000

**G.1 Materials and Supplies**
(a) Materials (tapes, supplies, software, licenses) for BaBaR, CMS analyses \hspace{1cm} 3876

**G.2 Publication Costs**
\hspace{1cm} 1000

**G.6 OTI - Other Direct Costs**
(a) Long distance charges – conference calls three a week for BABAR D0, CMS, MUON; Shipping and mailing charges. \hspace{1cm} 1000

(b) Tuition remission is requested for each graduate research assistant at the University's standard rate of $1958 per semester (2 students @ 2 semesters per student @ $1958 per semester = $7832) \hspace{1cm} 7832

\textit{Indirect costs are calculated in accordance with The University of Mississippi rate agreement with DHHS, dated February 3, 1999. Indirect costs for research are calculated at 43.5\% of Total Direct Costs less equipment, tuition remission, and the portion of each subgrant or subcontract in excess of $25,000. Under a special agreement with the University an indirect cost rate of 34\% is applied on modified total direct costs except travel, on which a 10\% rate is applied.}
1 Budget Justification -FY04 -06 (4-1-04 to 3-31-07)

A.1-4. Four faculty supported for two summer months each to perform research full-
time and to direct students. The summer commitments are:
   (a) L. Cremaldi: BABAR 70%, CMS 30%, 05% MUON
   (b) R. Kroeger: BABAR 100%
   (c) D. Summers: BABAR 60%, CMS 10%, MUON 30%
   (d) B. Quinn: D0 100%
   (Academic year support, with reduced teaching loads, is provided by the University.)

A.6. Two months summer salary for Dr. David Sanders, Research Scientist/Computer
System Manager. Dr. Sanders is supported 10 months by the physics department. He spends greater than 50%
time on the UMHEP computing, RAID Arrays, supporting UMiss systems at SLAC, performing physics analyses. Two months support is requested so he can continue his support of BABAR (systems, RAID arrays, etc.), some software development for CMS, and bring up our D0/CMS computing. Sander’s also supports test beam operations at CERN for our group. In his absence for research purposes, the department pays a student for backup (13.2K per yr.). The Department contributes about 5 months of Dr. Sander’s salary, and with the student totals an in-kind contribution of \( \approx \$33K + 25.04\% \) fringe.

B.1 Three postdoctoral associate are supported full-time:
   (a) J. Bauer: 100% BABAR
   (b) H. Zhao: 100% BABAR
   (c) R. Godang: 90% BABAR; 10% MUON

B.2 FY04 Support for CMS Machinist/Designer

B.3 One graduate student, V. Eschenburg, is doing his dissertation in residence at
SLAC and needs full support. One dissertation student, E. Aitala, is supported by
the University and no support is requested for him. Aruniva Roy and Bashali Ray
are working 50% department and 50% DOE, and will need future support upon full
commitment to HEP.

B.4 Two undergraduate students receive hourly compensation to operate the high energy
physics computer farm and assist in data analysis and detector construction.

C. Fringe benefit rate: 25.04\% of salary for Senior Personnel and Post Doctoral As-
dicates; 3\% of salary and wages for undergraduate and graduate students.
   (All salaries and wages and fringe benefits are consistent with guidelines established
D. **FY04 Permanent Equipment** 6 dual processor CPU’s ($1500 ea) will be purchased for the D0/CMS Linux Computer farm. A RAID array ($2.5K ea) will be networked to the farm and analysis work stations (BaBar,D0,CMS) through a high speed switch ($1K).

The University is providing an added cost sharing of $12500 in FY04 equipment matching, $4500 Office of Research, $4000 School of Arts & Sciences, and $4000 Department of Physics and Astronomy. The purchase of this equipment is to follow guidelines mentioned in budget item D.

E.1 **Domestic Travel (4 faculty, 1 research scientist, 3 postdocs, 1 student)**

(All domestic travel costs are based on average cost of such trips in FY00 corrected for inflation and are consistent with university policy and regulations.)

**BABAR RELATED:**
(a) Supplement for student/postdoc for 12 months at SLAC 22000
(b) Two physicists at two national meetings (DPF,IEEE) to present papers 3000
(c) Support for three faculty for collaboration meetings and shifts 23460

**CMS RELATED:**
(a) Two physicists to US CMS collaboration meetings and tests 19000
(b) D0 - one physicist to D0 meetings and shifts 5000
(c) CMS Related travel - 2 physicist 4000

E.2 **Foreign Travel (3 faculty, 1 research scientist, 3 postdocs)**

(All foreign travel costs are based on average cost of such trips in FY00 corrected for inflation and are consistent with university policy and regulations.)

**BABAR RELATED:**
(a) Collaboration meetings for two physicists 11000

**CMS RELATED:**
(a) Two CMS collaboration meetings/year at CERN for two physicists 11000
(b) Physicist to participate in CERN testing 6000
(c) PIXEL technical meetings - one physicist 2000
(d) CMS Related travel - 2 physicists 3000
G.1 Materials and Supplies
   (a) Materials (tapes, supplies, software, licenses) for BABAR analyses  11495

G.2 Publication Costs

G.6 OTI - Other Direct Costs
   (a) Long distance charges – conference calls three a week for BABAR D0, CMS, MUON; Shipping and mailing charges.  3000

   (b) Tuition remission is requested for each graduate research assistant at the University’s standard rate of $1958 per semester (2 students @ 2 semesters per student @ $1958 per semester = $7832)  23496

Indirect costs are calculated in accordance with The University of Mississippi rate agreement with DHHS, dated February 3, 1999. Indirect costs for research are calculated at 43.5% of Total Direct Costs less equipment, tuition remission, and the portion of each subgrant or subcontract in excess of $25,000. Under a special agreement with the University an indirect cost rate of 34% is applied on modified total direct costs except travel, on which a 10% rate is applied.