ADDENDUM
to

THE MEMORANDUM OF UNDERSTANDING FOR A MULTI-LATERAL COLLABORATION

between

THE INSTITUTIONS AND FUNDING AGENCIES OF THE CTF3 COLLABORATION

concerning

THE CONTRIBUTION OF THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY

TO THE CTF3 COLLABORATION

September 2007

CONSIDERING:

The Memorandum of Understanding ("the MoU") defining the framework applicable to the construction of a 3rd generation Compact Linear Collider Test Facility (CTF3) and the performance of Experiments to demonstrate the feasibility of key issues of the CLIC scheme;

That Article 1.2 of the MoU envisages Addenda defining each contribution pledged to the CTF3 Collaboration,

THE THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY REPRESENTED BY ANDREW HUTTON, in its capacity as Member of the CTF3 Collaboration, **HEREWITH AGREES** to make the following contributions:

I. CTF3 Work Packages

1. **CTF3 commissioning and operation support by experienced machine Physicists**
   Open work package for CTF3 – G. Geschonke Memo 23.4.2007

   Scope/Deliverables: Participate in CTF3 commissioning with emphasis on beam optics measurements and analysis.

   JLab PIs: Alex Bogacz and Yu-Chiu Chao

   Total labor:
   FY08: 2 x 5 FTE-weeks
   FY09: 2 x 5 FTE-weeks
   FY10: 2 x 5 FTE-weeks

2. **CTF3 diagnostics and instrumentation**

   Scope/Deliverables: Assess CTF3 requirements and compare to the range of operation of JLab non-destructive beam profile measurement techniques, including ODR and SLI. Evaluate JLab coaxial line proposal for beam loss monitoring system. Deliverable TBD after initial calculations are complete. Explore collaboration with Prof. Mayda Velasco, Northwestern University, Illinois on CTF3 instrumentation.
   Participation of Thibaut Lefevre in JLab ODR experiments (travel expenses and subsistence covered by CERN)

   JLab PIs: Pavel Evtushenko and Pavel Degtiarenko

   Total labor:
   FY08: 5 FTE-weeks [Preliminary studies]
   FY09 and FY10: TBD depending on preliminary studies

3. **Drive laser for CTF3 RF photocathode guns**

   Scope/Deliverables: Commissioning of CTF3 drive laser for CTF3 probe beam and drive beam RF photo-injectors.

   JLab PI: Matt Poelker

   Total labor:
   FY08: 3 x 2 FTE-weeks

II. CLIC Work Packages

1. **Design of isochronous beamlines for CLIC, and spin tracking.**

   Scope/Deliverables: Design of transfer line from ground level. Work on spin tracking through the CLIC lattices from damping rings to the interaction point. In particular, understand the best placement of the spin-rotator and issues of polarisation degradation during beam transport. The design will be completed before summer 2010.

   JLab PIs: Alex Bogacz, Yu-Chiu Chao, Yaroslav Derbenev

   Total labor:
   FY09: 3x5 FTE-weeks
   FY10: 3x5 FTE-weeks

2. **Design of polarized CLIC e- source.**

   Scope/Deliverables: Develop design concept for a 2A, 50 Hz, 250ns polarized electron source and laser system. With help of CERN designers, adapt JLab design to CLIC requirements and prototype. The design will be completed before summer 2010.

   JLab PIs: Matt Poelker and Joe Grames

   Total labor:
   FY08: 1 FTE
   FY09: 1 FTE
   FY10: 1 FTE

3. **High power beam dump design and cost**

   Scope/Deliverables: Engineering design and cost estimate for the 52 identical beam dumps required for the CLIC drive beam. Average beam power on each

dump is in the range of 300-600 kW. The design and cost estimate will be completed before summer 2010.

JLab PI: Mark Wiseman

Total labor:
FY08: 3 FTE-weeks
FY09 and FY10: TBD depending on scope of work

Total labor: 4.7 FTE – years
[1 FTE-year = 44 FTE-weeks]
M&S: N/A

The total financial equivalent of these contributions will be approximately 825 kCHF. [1 CHF = $0.8558US]

This Addendum shall form an integral part of the MoU.

Done in ~~Geneva~~ Newport News on 10/12 2007

For TJNAF

Name ..... Andrew Hutton
Function ... Associate Director, Accelerat