DEPARTMENT OF THE AIR FORCE
AIR FORCE OFFICE OF SCIENTIFIC RESEARCH (AFMC)
EUROPEAN OFFICE OF AEROSPACE
RESEARCH AND DEVELOPMENT (EOARD)

1 November 2019

MEMORANDUM FOR RECORD

TO: Commander, AFOSR/IO

FROM: AFOSR/IOE (EOARD)
Unit 4515, APO AE 09421-4515

SUBJECT: Missing Final Technical Report for FA9550-16-1-0307

1. No Final Technical Report was obtained for grant number FA9550-16-1-0307. I attempted to reach the Principal Investigator (PI) to obtain the Final Technical Report on 12 Sep 2016, 23 Mar 2018, 3 Aug 2018, and 20 Mar 2019. In addition, AFOSR STINFO tried on 20 Mar 2018. All attempts were unsuccessful.

2. The research proposed was to provide scientific basis for 4D programmed reinforcement employing ultrasonic manipulation and active matrices within 3D printing for designed simultaneous deformation and reconfiguration. A 4D material responds to a physical or chemical change of state through time. The work was primarily experimental with supporting numerical components. The objectives were:

a. Develop a multi-pattern ultrasonic device capable of manipulating, aligning, and switching between different fibrous constructs during 3D additive manufacturing.
b. Create 4D polymer matrices (hydrogel and liquid crystal based) for 3D printing.
c. Develop a new 3D ALM technique that harnessed in-situ multi-patterned ultrasonic manipulation of fibrous constructs within a 4D matrix for triggered time-dependent deployment of composite architectures.
d. Obtain mechanical and physical characterization of the 4D fibrous constructs and matrix materials including evaluation of rate of deployment, blocking force, and global stiffness-strain response for different geometrical configurations.
e. Demonstrate a proof of concept.

3. My contact details are DSN 314-235-6420 or david.garner.2@us.af.mil.

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DAVID M. GARNER, Lt Col, USAF
International Program Officer, Materials & Structures

cc: AFRL STINFO HQ

MEMORANDUM FOR AFRL/AFOSR

I approved the waiver for technical reports for this particular grant to DTIC as the afore-signed program manager has demonstrated due diligence in his/her attempt in obtain the required deliverable documents. This is in accordance with AFRLI 61-201 dated 9 February 2016 and AFRL guidance regarding unobtainable deliverables.

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D. BRENT MORRIS, Col, USAF
Commander