

Rollie Dutton

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Experience:

October 2012 to Present **Division Chief,** Air Force Research Laboratory, Manufacturing & Industrial Technologies Division, Materials & Manufacturing Directorate, WPAFB, OH.

Division Chief for ManTech. ManTech plans, manages, and executes manufacturing technology programs to establish the production capability for effective processes, materials, and procedures necessary to affordably fabricate and assemble DoD weapon systems for both acquisition and depot repair. In addition, ManTech is also the executive agent of the DoD Defense Production Act (DPA) Title III program which supports critical industrial base needs of the Army, Navy, Air Force, and Defense Logistics Agency. As Division Chief, I am responsible for the planning and execution of a \$330M portfolio of programs that span the entire life cycle of key DOD weapon systems.

September 2011 to October 2012 **Acting Branch Technical Advisor / Principal Materials Engineer,** Air Force Research Laboratory, Processing and Fabrication Branch, Manufacturing Technology Division Materials & Manufacturing Directorate, WPAFB, OH.

Acting Branch Technical Advisor for the Processing and Fabrication Branch of ManTech. The branch's mission is to develop and manage programs that address the production, processing, joining and fabrication of metals, polymers, ceramics, and structures. Activities include scale-up of manufacturing processes and the reduction of cost and overall cycle time for the production of metals and non-metal components. Member of the Integrated Computational Materials Engineering (ICME) IPT at AFRL/RX with responsibility for Verification and Validation. Developed numerous advocacy briefings and published papers on the "rules & tools" required to properly execute ICME.

2008 – September 2011 **Principal Materials Engineer,** Air Force Research Laboratory, Metals Branch, Metals, Ceramics and Non-Destructive Evaluation Division Materials & Manufacturing Directorate, WPAFB, OH.

Program manager for the Materials for Green Propulsion Initiative. This joint industry-Air Force initiative defined risk reduction projects for materials and process technologies that can deliver enhanced fuel efficiency and greenhouse gas emissions reductions for both the current and next generation of commercial and military turbine engines. In addition, performed in-house research developing modeling and simulation methods to predict the path dependent microstructural evolution and attendant mechanical properties of nickel-based superalloys. This research provides the constitutive information required for the design of processes for manufacturing dual-microstructure superalloy disks for the next generation of gas turbine engines.

2002 – 2008 **Supervisory Materials Engineer,** Air Force Research Laboratory, Metals Branch, Metals, Ceramics and Non-Destructive Evaluation Division Materials & Manufacturing Directorate, WPAFB, OH.

Branch Chief of the Metals Branch, Metals, Ceramics and NDE Division responsible for the leadership and administration of the Metals Core Technology Area (CTA). The Metals CTA had a budget of ranging from \$37M to \$42M per year and a portfolio of programs that supported Space, Aero-propulsion, Materials Lifting and Computational Materials Engineering. The Branch had over 30 government scientists and engineers in four Research Groups as well as 65 onsite contractors (scientists & engineers and support personnel).

2000 – 2002 Supervisory Materials Engineer, Air Force Research Laboratory, Metals Branch, Metals, Ceramics and Non-Destructive Evaluation Division Materials & Manufacturing Directorate, WPAFB, OH.

Section Chief of the Processing Section of the Metals Branch, Metals, Ceramics and NDE Division. This entailed day-to-day management of both in-house personnel as well as a significant number of extramural programs ranging across the breadth of metals processing – Laser Additive Manufacturing, Powder Metallurgy, Casting, Forging, etc. In addition, served as the program manager for the DARPA Accelerated Insertion of Materials (AIM) program. AIM was a high visibility program that developed novel methodologies that incorporated materials modeling to accelerate the implementation of new materials and processes into aerospace systems.

1992 – 2000 Materials Engineer, Air Force Research Laboratory, Metals Branch, Metals, Ceramics and Non-Destructive Evaluation Division Materials & Manufacturing Directorate, WPAFB, OH.

Performed research work involving extensive use of high temperature measurements of the creep and densification of both monolithic metals and ceramics as well as metal matrix composites. This included the development of models for the anisotropic consolidation of metal powders. Part of this effort involved the determination of constitutive equations for densifying metal powders for use in finite element simulations of the consolidation process as well as the development of high temperature process sensors. Other work involved the evaluation of processing/microstructure/properties relations for ceramic thermal barrier coating. In addition, developed a series of model glass-matrix composites that were used for the validation of micromechanics models of brittle matrix composite cracking and failure. Co-inventor on two US patents for high temperature piezoelectric sensors.

1987 – 1992 PhD Ceramic Engineering, University of Missouri-Rolla, Chancellor's Fellowship 1987-1992

Dissertation: "Sintering and Creep of Polycrystalline Ceramic and Glass Matrix Composites"

1977 - 1987 Petroleum Engineer, Amoco Production Company – Worked in a variety of technical and supervisory assignments. This included the supervision of engineers and technicians in petroleum production assignments. Extensive experience in the modeling and simulation of multi-phase flow in oil and gas reservoirs including a two year assignment at Amoco's Production Research Center as a field research engineer investigating the hydraulic fracturing of low permeability gas reservoirs.

Education: B.S. Geological Engineering (1976) from the University of Missouri-Rolla
 Ph. D. Ceramic Engineering (1992) from the University of Missouri-Rolla

Activities: The Minerals, Metals & Materials Society – Member 1997 to present
 ASM International – Member 1999 to present

Professional Engineer: State of Oklahoma # 12781

Patents: Ultrasonic transducer and ultrasonic detection and high temperature processing systems incorporating same (United States Patent # 5,886,456, March 23, 1999)
 High temperature piezoelectric sensor (United States Patent # 6,617,764, Sep 9, 2003)

Awards: Meritorious Civilian Service Award, 2008
 Air Force Research Laboratory Nominee: 54th Department of Defense (DoD)
 Distinguished Civilian Service Award, 2009

Publications: Thirty-three peer reviewed publications, thirteen conference publications