

Richard D. Floyd, Jr.

Ceramics Engineer • U.S. Citizen • Greenville, SC

(912) 341-3072 • richard@richardfloyd.com

PROFESSIONAL SUMMARY

Highly motivated materials engineer with 11 years of hands-on technical experience and 5 years of people management. I have technical proficiency in metal-ceramic composite formulations, process development for high-reliability electronic components, and a variety of materials characterization techniques. During my 5 years as a Senior Engineer, I led efforts to standardize company-wide materials characterization operating procedures and interface regularly with our Quality and Production groups to support advanced failure analysis and test methodology development for ceramic products. I communicate regular updates to corporate management concerning status of characterization equipment, shortcomings, and planned growth to support production, development, and quality assurance.

EDUCATION

Ph.D. in Materials Science and Engineering

North Carolina State University, Raleigh, NC

Dissertation Topic: *Improving the Science and Instrumentation of Cold Sintering*

July 2019

GPA: 3.8/4.0

B.S. in Applied Physics

Coastal Carolina University, Conway, SC

University Honors Program

May 2014

GPA: 4.0/4.0

RESEARCH AND INDUSTRY EXPERIENCE

Senior Engineer – Ceramics Development

April 2020 - Present

Kyocera AVX Components Corporation, Fountain Inn, SC

- Manage a team of 5 engineers and technicians staffing the Corporate Characterization Lab, fulfilling materials characterization, quality assurance, and failure analysis needs for 7 business groups across 11 international plants
- Developed material testing plans and procedures to understand failure mechanisms in customer applications, winning repeat business with two key customers
- Understand production and quality requests for material analysis and report results for both technical and customer levels
- Specified and purchased >\$3M of materials characterization equipment tailored to address manufacturing needs and quality analysis challenges, then led training and authoring of over 55 standard operating procedures (SOP)

Post-Doctoral Research Assistant

July 2019 – April 2020

Pennsylvania State University – Prof. Jon-Paul Maria

- Engineered reaction kinetics of thin film metal-metal oxides via vapor deposition by incorporating polystyrene buffer layers
- Rebuilt sputter deposition chamber to increase productivity fourfold and prevent unwanted spontaneous ignition
- Mentored 10 grad/undergrad students in proper lab practices, including 5S methodologies and visual workspace controls

NSF Graduate Research Fellow

June 2014 – July 2019

North Carolina State University & Pennsylvania State University - Prof. Jon-Paul Maria

- Applied new mechanistic understanding of cold sintering to predict alternative transport phases that enabled bulk ceramic densification below 300°C, expanding applicable materials spectrum
- Built a custom hydraulic press for in situ study of cold sintering, revealing undiscovered process mechanisms
- Oversaw packing, transportation, and installation of >\$2M of research equipment at Pennsylvania State University
- Group electron microscopy expert, training four other group members in imaging techniques for highly insulating materials

Research and Development Intern

June 2011 – May 2014

Metglas Incorporated, Conway, SC

- Operated miniature planar-flow melt spin (PFMS) caster, testing prototype alloy viability for production scale-up
- Conducted root cause analysis on cracking observed in casting nozzles and implemented process changes to increase lifetime

TECHNICAL SKILLS

Synthesis & Processing

Bulk ceramic processing (11 yrs), solid-state ceramic powder synthesis (8 yrs), metallic/ceramic sample polishing (14 yrs), ceramic failure analysis (8 yrs), MLCC manufacturing (5 yrs)

Materials Characterization

Scanning electron microscopy (SEM) (14 yrs), x-ray diffraction (XRD) (9 yrs), differential scanning calorimetry and thermogravimetric analysis (DSC/TGA) (9 yrs), dilatometry (9 yrs), mechanical testing (4 yrs), electrical characterization methods (4 yrs), x-ray fluorescence (XRF) (1 yr), x-ray imaging analysis (CT) (1 yr)

Software & Other

MATLAB (4 yrs), Igor Pro (4 yrs), SolidWorks (3 yrs), Minitab (3 yrs), LaTeX (2 yrs)