

## JOB POSTING PACKAGE ELECTRICAL DESIGN RESEARCH ENGINEER

### Position Description

This position is for a package electrical design research engineer in the 3D Packaging Research Center at Georgia Institute of Technology's Packaging Research Center (GT PRC). Electrical Design is one of seven (7) Core Technology Research areas in PRC.

### Background

GT PRC goes beyond the traditional exploratory research by faculty and graduate students to an integrated and system level approach involving faculty and students as well as design and process research engineers and collaborating industry engineers, with particular focus on: 1) leading-edge electronic and bio-electronic systems research, 2) cross-discipline education of students, and 3) industry collaborations with more than 70 companies from the U.S., Europe and Asia, all in one transformative systems technology called System-On-Package (SOP). Pioneered by the Center, SOP technology represents a radically different approach to electronic and bio-electronic systems. It shrinks bulky circuit boards with their many components and makes them nearly disappear – the result of which leads to package-sized systems – hence the name system-on-package. In effect, SOP sets up a new law for system integration. It holds that as the components shrink from milli- to micro- to nanoscale, component density will double every few years, leading to an exponential increase in the number of system functions packaged in a device that is the size of today's cell phones. As these systems are explored with nanoscale components, electronic systems and are expected to trend to mega-functional systems at lowest cost in smallest size.

### Job Role and Responsibilities

The design research engineer role includes these primary elements: leadership and management support for the electrical design core area providing research vision, strategy research program development in support of the above SOP vision, seeking and securing of sponsor funding for design core team, collaborating with academic faculty, mentoring graduate students and collaborating with semiconductor, package and system companies from around the world.

The primary job responsibilities of this position include:

1. Providing design research coupled to materials and processes to explore and demonstrate a number advanced RF, digital, Optical, MEMS and Sensor prototypes. Specific examples include electrical design of interposers for mixed-signal modules, camera modules, high bandwidth modules, processor packages and thin film passive components
2. Coupling to academic faculty in and outside PRC for collaborative research
3. Seeking and securing research funding through proposal development to government and industry
4. Mentoring MS and PhD students
5. Collaborating with Global companies from the U.S., Europe, Japan, Korea, India and China
6. Writing high quality, peer-reviewed research publications, inventions, and patents as a sole or co-author with mentored students, other research engineers and PRC faculty.

### Qualifications

Minimal Requirements:

A Ph.D degree in Electrical Engineering or related field in addition to five to seven years industry or academia research program execution and management experience in digital, RF, analog, MEMS and optical chip and system design. Hands-on experience in package design tools is required. Specific areas of expertise needed include:

1. Relevant experience in signal and power integrity design for IC packages, modules and systems
2. Familiarity with electrical design of advanced 3D packaging technologies such as embedded actives and passives, high density organic packages, silicon and glass interposers, through-silicon-via and 3D stacked die, and fine pitch chip-to-chip electrical and optical interconnects
3. Experience in design tools for electrical modeling and simulation including SONNET, Ansoft 3D, HFSS, CST Microwave and others
4. Experience in package and board design tools including Cadence APD or Mentor Graphics CAD tools
5. Experience in advanced package design, all the way through to layout conversion, including proficiency with AutoCAD and CAM350 and working knowledge of ProE, APD and Allegro Viewer
6. Extensive hands-on experience in high frequency characterization up to mm-wave frequencies for digital, RF, analog and other devices and packages and working knowledge of VNAs, probe stations, TDR, antenna measurements and other tools
7. Prior experience in managing R&D test vehicles and coordinating inter-disciplinary teams for end-to-end planning and execution of advanced package prototypes
8. Solid understanding of package design process and lifecycle
9. Experience with design rule development and verification for advanced substrates and packages
10. Demonstrated ability to lead industry research projects with quarterly milestones and yearly deliverables
11. Demonstrated ability to generate ideas and write high quality proposals to industry and government sponsors
12. Some experience in classroom teaching and graduate student mentoring.

Additionally, knowledge in developing industry partnerships, strong project leadership and management skills, technical writing, presentation and communications skills are a must. This position requires some travel. The candidate is expected to work in a team environment and work in design, fabrication and high frequency characterization laboratories.

### Application Process

If interested, please send resume to: Ms. Karen May at karen.may@prc.gatech.edu.

