

**Scientist Recruitment Initiative  
RWU Proposal**

**Name of Proposal Contact:** Dr. Said Abubakr  
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**Name and contact points of proposed position supervisor:** Dr Said Abubakr

**Position title/discipline of proposed position:** Research Chemist

**Brief description of proposed RWU/graduate research supported through the position:**

The research group and student will develop a research program to develop biological treatments that will allow control of surface and bulk properties of wood fibers. The chemical and morphological structure of fibers determines their performance in paper and fiberboard. By using fibers with correct properties for an application, we will improve efficiency of wood fiber utilization.

As an example of the initial research direction, we will study the fundamental chemistry of Biopulping, or the treatment of wood with fungi before pulping. Although the Forest Products Laboratory is the world's leading research institution on Biopulping, many fundamental questions about the mechanisms of the process remain unanswered. Understanding fungal modification of wood biopolymers during initial colonization will lead to improvements that will reduce the water, chemicals, and energy required to produce both chemical and mechanical pulp. Biological pretreatment will also reduce environmental impacts on air and water.

Understanding the mechanism of fungal decay of wood also supports solid wood utilization research at the Forest Products Lab. For example, products of this research could lead to environmentally benign wood preservatives. The expertise developed by the student would be applicable to many challenges in the areas of developing environmentally-friendly fiber modification technologies, improving efficiency of fiber utilization and extending the working life of solid wood, thereby extending and conserving the forest resource.

**Desirable academic qualifications of the student recruit:** Since analytical chemistry skills will be required to accomplish this research, a Masters degree in analytical chemistry, or equivalent, will be required. The goal of the position would be to complete a Ph.D. program prior to conversion to a Research Chemist.

**Colleges/Universities:** (to extend beyond those already identified in the Service-wide multicultural workforce initiatives such as historically black colleges and universities, the American Indian Higher Education Consortium, and the Persons with Disabilities Initiative) to be contacted for potential recruits/applicants: University of Wisconsin-Madison.

**Potential colleges/universities to provide graduate education:** The University of Wisconsin (UW)– Madison offers programs in analytical chemistry, chemical engineering, forestry, microbiology, biochemistry, and engineering. Due to the co-location of the Forest Products Laboratory on the UW campus, there is significant cooperation between the institutions. Many FPL staffs have appointments and teach courses at UW. The student will be able to maintain an office and conduct research at FPL while pursuing a degree at UW.

**Brief description of the community environment (including housing, transportation, and recreation opportunities, ethnic breakdown):** Madison is a vibrant community invigorated by the 41,000 UW students, the state capitol, and consistently low unemployment. It is consistently ranked among the best cities in the United States by money magazine. There are a multitude of social, political, environmental, and cultural groups in the community. There are abundant parks, cultural events, and an extensive public transportation network. Ethnic diversity is approximately 86.5% White, 5.5% Black, 5.1% Asian, and 2.8% Hispanic.

**Proposed temporary housing options for the student while working away from the campus (for example while working at the lab during summer months):** Since the Forest Products Lab is located adjacent to the University of Wisconsin campus there is great opportunity for cooperation between the institutions and no need for temporary housing. Off campus unfurnished one bedroom apartments are available for \$600 to \$800 per month.

**Brief explanation of how this proposal supports the scientist recruitment initiative:** This proposal fulfils the purpose of the scientist recruitment initiative because it trains a scientist to work in a priority area at FPL. This initiative provides the opportunity to train a candidate to fit the needs of the biopulping team in better understanding of the fundamental chemistry and mechanism of biopulping. Understanding the mechanism of fungal decay of wood also supports solid wood utilization research at the Forest Products Lab. The expertise developed by the candidate would be applicable to many challenges in the areas of developing environmentally-benign fiber modification technologies and extending and conserving the forest resource. We have already identified highly qualified and productive candidates who would like to pursue their Ph.D. at the University of Wisconsin and work at the Forest Products Laboratory.

Station priority of proposal: Priority 1\_\_\_\_\_

Priority 2\_\_\_\_\_

I understand acceptance of this proposal will result in a commitment to hire the student into a full-time permanent scientist position at my unit upon successful completion of the program.

Project Leader

Station Director

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Signature

Date