

## **Strategic International Partnership Initiative: Chile**

### **Title: OSU-UBB-NSF Collaborative Education and Research**

#### **Project Director:**

Fred Kamke  
Professor  
Dept. Wood Science & Engineering  
College of Forestry  
Oregon State University  
[Fred.kamke@oregonstate.edu](mailto:Fred.kamke@oregonstate.edu)  
Tel. 541-737-8422

#### **Project Description:**

##### Introduction

The project will initiate a graduate student research and education program between Oregon State University and the University of Bio Bio (UBB) in Concepcion, Chile. The program will include Chilean industry to assist with recruiting and mentoring the students. The cooperation of Chilean industry will be arranged through the National Science Foundation Industry/University Cooperative Research Center for Wood-Based Composites (WBC). The WBC currently supports graduate education via graduate research assistantships, financial support for tuition, and minor research expenses for students obtaining degrees at Virginia Tech and OSU. The WBC does not provide expenses for student interns and graduate students to travel to the university. The WBC has industry members, including Arauco (Santiago, Chile). In addition, the WBC has invited Oxiquim (Santiago, Chile) to join the WBC in FY16. These companies are motivated to hire students with advanced degrees who are interested in the wood-based composites industry and have a desire to pursue their career in Chile.

UBB offers undergraduate programs that prepare students for an advanced degree in Wood Science. For example, the Ingeniería Civil en Industrias de la Madera program (Civil Engineering in Wood Industries) prepares students in basic sciences and engineering principles for careers in manufacturing operations, management, process design and utilization of forest products. These students would have all of the basic science requirements and math needed to be successful at OSU. In addition, the curriculum requires English as a second language. UBB recognizes the importance of the wood products industry in Chile as well as the international wood product markets. Therefore, UBB seeks to strengthen collaboration with industry and international partners.

Arauco joined the NSF IUCRC for Wood-Based Composites in FY2015. Arauco has manufacturing facilities in Albany and Eugene, Oregon, in addition to other facilities in the United States and Canada. Whether or not this proposal is funded, the WBC will provide research services to Arauco as part of our normal research program. However, the Chilean Initiative is a timely opportunity to get Chilean students involved with the WBC and create a sustainable means of continued collaboration between UBB and OSU.

## Objectives

The goal of this program is to create a sustainable collaboration between UBB and OSU. The objectives of this initiative are:

1. Initiate a procedure to Identify potential Chilean students and recruit them as MS or PhD students into the College of Forestry at OSU.
2. Secure long-term financial support for this program from Chilean industry through their membership in the WBC.
3. Identify internship opportunities for OSU students at Chilean industry facilities or at UBB.

## Approach

The approach is to create a pipeline of qualified and interested students from Chile to the WSE Department at OSU. The process begins with two interns and one graduate student. Kamke will travel to Concepcion to meet with representatives of the administration and faculty at the University of Concepcion. In addition, Kamke will interview potential interns and graduate students. The interview process will require some marketing of the WSE graduate program at OSU. The plan is to get one graduate student to begin a program starting in 2016, and two interns to visit OSU in 2016. Each student will be assigned a research project that will be funded by the WBC. The students will interact with technical sponsors, who are industry members of the WBC. The technical sponsors have a high level of interest in the research project. The students will also participate in the WBC Industry Advisory Board Meetings, and thus meet all of the industry member companies. If this program is successful, the interns will return to OSU as graduate students, and the graduate student will become an OSU ambassador in Chile for future student recruits. Once the “pump is primed”, the expectation is for a continuous flow of one or two interns, and one graduate student, from Chile each year. Long-term financial support will come from the WBC.

The WBC has a full-time managing director who has regular communication with our industry members. The Managing Director also communicates with partner universities. Currently, the WBC collaborates with the University of Maine and University of British Columbia. We anticipate that a similar relationship will be created with the University of Bio Bio. In addition, we expect the COF International Office will assist with arranging internships. To minimize the administrative effort and maintain momentum for the program, we intend to consolidate the educational and research aspects of this program with the existing ongoing efforts of the WBC.

Research topics for the graduate student and the interns will be selected by the WBC Industry Advisory Board. Topics must focus on some aspect of wood-based composites or adhesion. Research projects must originate with a proposal from a faculty member, and include justification, objectives, statement of work, deliverables, and a budget. Faculty advisors at OSU would be Kamke, Sinha, Nairn, Muszynski, Gupta, or Leavengood.

We recognize that placing an OSU student in an internship in Chile is difficult due to financial and language barriers, and potential for delay in graduation. With graduate students who are funded by the WBC, we have an opportunity to coordinate an internship with their research project. Funding for travel could be accomplished as part of the WBC research project funding, but this will require justification on a project by project basis. Authorization for WBC research project budgets is determined by the WBC Industry Advisory Board. Another mechanism for graduate student financial support to study abroad is through the NSF IUCRC Innovations Scholar Program. In 2014 OSU placed a student in Germany through

the Innovations Scholar Program. Internship opportunities for OSU undergraduate students abroad will need to be self-funded, or funded by one of the WBC industry members. The WBC Managing Director coordinates internships with our member companies. The initial visit to Chile by Kamke will include discussion of potential internship opportunities for OSU students.

The proposal includes the following key elements:

1. Kamke will travel to UBB in 2015 to meet with potential students and UBB administration to create the final plans for the program.
2. Two undergraduate student interns from UBB visit OSU for 3 to 6 months in 2016.
3. The interns attend classes and participate on a research project in the area of wood composites or adhesion.
4. One UBB graduate enrolls in the MS degree program at OSU for 2 years. If necessary, this could be a PhD student.
5. The graduate student works on a research project selected by the Wood-Based Composites Center.
6. The OSU College of Forestry pays transportation expenses for the student interns and for the graduate student. In addition, OSU pays a stipend to the undergraduate student interns to cover living expenses, not to exceed \$6,000 per student, for a stay up to 6 months.
7. The graduate student receives a stipend of approximately \$21,000 per year for 2 years. The stipend is paid by the Wood-Based Composites Center. The WBC also covers the cost of tuition at OSU and other associated costs for the research project (total is approximately \$90,000).
8. A representative from Arauco (and possibly Oxiquim) will serve as a mentor for the students.
9. The program is expected to continue beyond 2016 with financial support from the Wood-Based Composites Center for a Chilean graduate student, assistance from UBB to encourage students to participate, and possibly financial support from UBB to cover travel expenses for future UBB student interns.

I believe that once we get the initial students involved, we will create continued interest by UBB students, produce useful research results, place graduates in jobs at Arauco and Oxiquim, and attract American students to seek similar opportunities at UBB or Chilean industry.

Deliverables

Deliverables will be accomplished over a 2 or 3 year period depending on whether an MS or PhD program is started. In Year 1, two undergraduate students will complete an internship in the WSE Department at OSU. At the end of Year 2 (or 3), one graduate student will complete their degree requirements at OSU.

Timeline

Task	Time
Planning meeting & recruiting in Chile	Oct 2015
Interns at OSU	Jul – Dec 2016
Graduate student start	Jul 2016
Technical sponsor conference calls	Monthly as needed
WBC meetings	Oct 2016, May 2017, Oct 2017, May 2018
Graduate student completion expected	June 2018

## Budget

	No.	Weeks	Hrs/Wk (each)	Rate	Total
<b>COF:</b>					
Hourly wage (interns)	2	24	20	10.5	\$10,080
OPE (8.31%)					\$838
Travel:					
Kamke (EUG - Conception)					
7 nights (pkg with air fare)					\$1,700
Meals					\$400
Misc. travel					\$200
Student travel:					
2 interns RT	2			1500	\$3,000
1 graduate student RT	1			1500	\$1,500
<b>Total:</b>					<b>\$17,718</b>
<b>WBC:</b>					
GRA (2 years)					\$43,556
OPE					\$7,799
Tuition (8 terms)					\$36,663
<b>Total:</b>					<b>\$88,018</b>
<b>Project total:</b>					<b>\$105,735</b>

## Chilean Partners

Maureen Trebilcock K., PhD  
Directora General de Relaciones Institucionales,  
Director of Institutional Relations and International Affairs  
Av. Collao 1202 – Concepción  
CHILE  
mtreilc@ubiobio.cl - [www.ubiobio.cl/rrii](http://www.ubiobio.cl/rrii)

Bruno Gorrini  
Panels Group Manager, Bioforest S.A.  
PO Box 70-C  
Concepcion  
CHILE  
Email: bruno.gorrini@arauco.cl

Vicente Gambaro  
R&D Manager  
Oxiquim SA  
Camino a Coronel Km. 18.5  
Concepcion  
CHILE  
Email: vicente.gambaro@oxiquim.cl



UNIVERSIDAD DEL BÍO-BÍO

RECTORÍA

Concepción, 3<sup>rd</sup> of June 2015

**Dr. Frederick A. Kamke**  
**Dept. Wood Science & Engineering**  
**College of Forestry**  
**Oregon State University**

I would like to express my support for the proposal for a graduate student research and education program that Oregon State University and Universidad del Bío-Bío are presenting. The program will include Chilean Industry to assist with recruiting and mentoring students, arranged through the National Science Foundation Industry/ University Cooperative Research Center for Wood-Based Composites (WBC).

The goal of the program is to create a sustainable collaboration between Oregon State University and Universidad del Bío-Bío that will initiate with a student exchange activity in 2016.

Yours sincerely,



**Dr. Arq. HÉCTOR GUILLERMO GAETE FERES**  
**Rector / President**  
**Universidad del Bío-Bío**

---

**Sede Concepción**

Avda. Collao N° 1202 - Casilla 5-C - Código Postal: 4081112 - Fonos: (56-41) 3111200 - Fono/Fax: (56-41) 3111040 - Región del Bío Bío - Chile

**Sede Chillán**

Avda. Andrés Bello s/n Casilla 447 - Código Postal: 378000 - Fono/Fax: (56-42) 463000 - Región del Bío Bío - Chile

E-mail: [ubb@ubiobio.cl](mailto:ubb@ubiobio.cl)

[www.ubiobio.cl](http://www.ubiobio.cl)



Concepción, June 3<sup>rd</sup> 2015

**Dr. Frederick A. Kamke,**  
**Dept. Wood Science & Engineering**  
**College of Forestry**  
**Oregon State University**

According our conversations to establish collaborations between organizations in Chile and Oregon State University, Arauco would like support and participate in a program for getting students from Chile to study at OSU and to get OSU students interns to visit our Company. We want to create a sustainable collaboration between Oregon State University, Arauco and other Chileans institutions.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Bruno Gorrini B.", written over a light blue horizontal line.

Bruno Gorrini B.,  
R&D Manager BioPanels

ARAUCO