



## **São Paulo School of Advanced Science on Nitrogen cycling, environmental sustainability and climate change**

31 July – 10 August 2016, São Pedro, SP - Brazil

### **What?**

The University of São Paulo's (USP) Center of Nuclear Energy in Agriculture (CENA) and the Inter-American Institute for Global Change Research (IAI) announce the **São Paulo School of Advanced Science on the unequal distribution of nitrogen in the world and its consequence on the environmental sustainability under a scenario of climate changes**. The School is funded by the São Paulo Research Foundation (FAPESP). Other collaborators are Brazil's National Institute for Space Research (INPE), the University of Brasilia (UnB), and the International Nitrogen Initiative (INI). The 10-day course will consist of lectures, theoretical lessons, a technical fieldwork, literature discussion sessions, and student poster presentations.

### **Why?**

Nitrogen plays a fundamental role in life. It is universally used as a fertilizer in agriculture. While in many countries it is used in large amounts, in parts of the developing world its use is limited and not enough nitrogen is available for optimal food production. Excess nitrogen causes contamination problems in terrestrial and in aquatic ecosystems. Therefore, the challenge is to supply nitrogen in a way that enhances and sustains food production without damage to the environment. This is especially important because the manufacture of nitrogen fertilizers consumes large amounts of energy in a world that is already facing pressures of climate and global changes.

### **Who?**

About 100 graduate students, 50 from Brazil and 50 from other countries will be selected to participate in this São Paulo School of Advanced Science. Applicants must be currently enrolled in a graduate program. We encourage applications from students from different academic disciplines (natural, social and human sciences, engineering) provided their academic work and study is related to nitrogen cycles and related topics.

### **Objectives**

To provide graduate students with knowledge on nitrogen cycling and related topics that crosscut questions of nitrogen availability, natural and anthropogenic processes, social-economic issues and public policy. The goal is to improve participants' understanding of the changes in the biogeochemical cycle of nitrogen, good practices in the use of nitrogen and its impacts on multiple sectors. The school will address the complex interactions among nitrogen, agriculture, sustainability and global changes.

## **Program**

- Challenges and opportunities of the nitrogen cycle (biological fixation, geochemical cycles, human modification of the N cycle);
- Nitrogen use and environmental consequences (nitrogen footprint, future use of nitrogen fertilizers, greenhouse gas emissions associated with N use, nitrogen cascade);
- Nitrogen in sustainable agriculture (agriculture systems that combine the use of mineral and organic nitrogen, microorganisms and the N cycle: reducing losses, biological nitrogen fixation in agriculture systems);
- The N cycle under different climatic stresses (illustrated with Brazilian biomes of the Amazon, Cerrado and Caatinga);
- Student poster presentations.

## **Application Information**

Language requirement: the program will be conducted in English. Therefore, applicants must be proficient or have a sound understanding of the English language in order to understand, communicate, and participate actively in the school activities.

Application process: Requirements and application form are available at <http://www.iai.int/?p=11889>

Applications are due by 14:00 São Paulo, Brazil time on 30 May 2016.

Applicants must fill out the application form and submit a short CV (no more than 2 pages) as well as a reference letter from a thesis advisor indicating the expected benefits for the applicant's academic work and studies.

Applicants must clearly state the reasons for their personal and academic interest in the school and why they should be selected to participate.

## **Financial Support**

Travel support fellowships are available. If you need financial support, please indicate so. If you would cover your own travel costs, please let us know in your application form.

Participants will be selected based on the merit of their application information, the relevance of the academic work and studies related to the school themes, and disciplinary, gender and regional balance considerations.

Participants will receive a certificate from the University of São Paulo/CENA acknowledging their participation in the School, provided that they attend all sessions of the program.

If you need further information contact us at [iai.brazil2016@dir.iai.int](mailto:iai.brazil2016@dir.iai.int)