



Theme 2: New technologies and frontiers of sciences

Project 2.8 Natural resources and cutting-edge technologies

Eduardo N. dos Santos

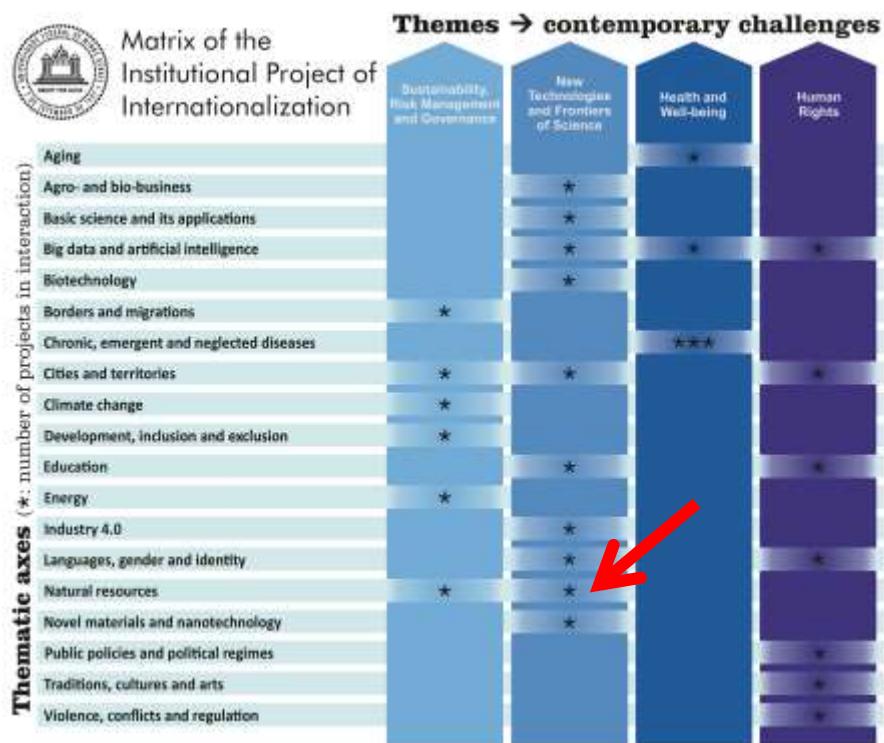
Department of Chemistry – ICEx -UFMG

First InPrInt Seminar

UFMG, Belo Horizonte

19-23 November 2018

How PrInt/UFMG **changes** the ways we collaborate



- Actions building on a matrix of four themes (contemporary challenges) and **28 thematic axes** (projects)
- PhD Programs are expected **to work together** with partner institutions abroad to develop cross-cutting research aligned with the PrInt/UFMG themes and projects
- Funding will be allocated to **outgoing** and **incoming mobility actions** within the four themes by means of internal calls

- To foster and enhance collaboration with *partner universities*
- To consolidate the *training and experience abroad* of *UFMG faculty members*
- *To train PhD students abroad* through internships
- *To recruit postdoctoral fellows and early-career researchers* with experience abroad to work at UFMG within the PrInt themes and projects
- To attract *internationally renowned visiting professors* with highly recognised experience for short stays (15 days) at UFMG

OUTGOING

- PhD mobility grants for internships abroad (six to twelve months)
- Junior Professor grants for visiting professorships abroad (six months)
- Senior Professor grants for visiting professorships abroad (six months)

INCOMING

- Postdoctoral grants for activities at UFMG (12 months, renewable)
- Early-career researcher grants for activities at UFMG (12 months, renewable)
- Senior Professor grants for international visitors at UFMG (15 days)



UFMG Graduate programs in the project: 2.8 Natural resources and cutting-edge technologies

In the presentation:

- Chemistry
- Geology
- Biological Sciences: Physiology and Pharmacology
- Economy

Interested:

- Odontology

Partner institutions willing to collaborate with UFMG in this project (so far)

- University of Glasgow – Scotland - [Cristina Persano](#)
- University of Rome "Tor Vergata" – Italy – [Renato Gavasci](#)
- Universidad Nacional Autónoma de México (UNAM) –Mexico- [Maria Arizmendi](#)
- University of Technology Sidney – Australia – [Hokyong Shon](#)
- Lincoln University – New Zeland – [Hugh Bigsby](#)
- University of Southampton - England – [David Wilson](#)

New collaborations will be most welcome!

On-going research themes at UFMG

Project 2.8 “Natural resources and cutting-edge technologies”

Bio renewables

- Substitution of fossil-based products by bio renewable-based products
- Valorization of products and side products from biodiesel chain
- Valorization of products, side products, and rejects from forestry and agricultural industry
- Biorefinery technologies

UFMG Graduate programs involved:

- Chemistry

Partners and funding agencies:

- CNPq (National Council for R&D)
- FAPEMIG (Foundation for Research Support of the State of Minas Gerais)
- Industrial Partners

On-going research themes at UFMG

Project 2.8 “Natural resources and cutting-edge technologies”

Venoms and Animal Toxins

- Prospecting, obtaining and characterizing new active natural toxins, especially neurotoxins from venomous animals with mammalian and/or insect activity.
- Mechanisms of action
- Molecular biology of toxins

UFMG Graduate programs involved:

- Biological Sciences: Physiology and Pharmacology

Partners and funding agencies:

- CNPq (National Council for R&D)
- FAPEMIG (Foundation for Research Support of the State of Minas Gerais)

On-going research themes at UFMG

Project 2.8 “Natural resources and cutting-edge technologies”

Natural products and new formulations

- Obtaining and characterizing new drugs from natural species, especially plants, with different activities, as antitumor, analgesic/anti-inflammatory, cardiac, vascular, wound healing etc.

UFMG Graduate programs involved:

- Biological Sciences: Physiology and Pharmacology

Partners and funding agencies:

- CNPq (National Council for R&D)
- FAPEMIG (Foundation for Research Support of the State of Minas Gerais)

On-going research themes at UFMG

Project 2.8 “Natural resources and cutting-edge technologies”

Deforestation and socioeconomic impacts

- Environmental and economic impacts of land use change in Brazil
- Construction of economic models to land use change in Brazil

UFMG Graduate programs involved:

- Economy

Partners and funding agencies:

- CNPq (National Council for R&D)
- FAPEMIG (Foundation for Research Support of the State of Minas Gerais)

On-going research themes at UFMG

Project 2.8 “Natural resources and cutting-edge technologies”

Mining: products, rejects and risk management

- Valorisation of mining rejects (especially iron mining)
- Development of new products and applications of mining products and derivatives (especially for niobium products)
- Contaminant analysis
- Remediation technologies/descontamination

UFMG Graduate programs involved:

- Chemistry

Partners and funding agencies:

- CNPq (National Council for R&D)
- FAPEMIG (Foundation for Research Support of the State of Minas Gerais)
- Industrial Partners

On-going research themes at UFMG

Project 2.8 “Natural resources and cutting-edge technologies”

Genesis of mineral deposits using geochronology, stable isotopes, fluid inclusions

- Geochronological studies using sensitive high-resolution ion microprobe (SHRIMP)
- In situ Laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) in ore minerals
- In situ stable isotopic using Secondary-ion mass spectrometry (SIMS)

UFMG Graduate programs involved:

- Geology
- Mining Engineering

Partners and funding agencies:

- Cnpq
- FAPEMIG
- UWA
- University of Leeds

On-going research themes at UFMG

Project 2.8 “Natural resources and cutting-edge technologies”

Mining and Water Resources

- Mining sector impacts on the dynamics of regional growth, development and environment, especially on the use of water resources
- Water scarcity and economic impacts
- Understand the importance of water as a productive input and consumption of households and how limitation of its use affects the economic decisions of sectors and households regionally.

UFMG Graduate programs involved:

- Economy

Partners and funding agencies:

- CNPq (National Council for R&D)
- FAPEMIG (Foundation for Research Support of the State of Minas Gerais)

On-going research themes at UFMG

Project 2.8 “Natural resources and cutting-edge technologies”

Monitoring of underground waters in karst cavities from São Francisco Basin, Minas Gerais

- indication of antropic pressure of regions that encompass the speleology heritage of Minas Gerais

UFMG Graduate programs involved:

- Geology

Partners and funding agencies:

- CDTN
- ICMBio/CECAV

On-going research themes at UFMG

Project 2.8 “Natural resources and cutting-edge technologies”

The great oxygenation event in the paleoproterozoic : paleobiological implications

- Isotopic studies
- Trace elements analysis
- Chemostratigraphy of sedimentary sequences

UFMG Graduate programs involved:

- Geology

Partners and funding agencies:

- Cnpq
- UWA
- University of California Riverside

Concluding remarks for

Project 2.8 “Natural resources and cutting-edge technologies”

- Possibilities of cross-cutting research within UFMG, fostered by and fostering international cooperation
- Interested to learn more about specific subjects or or match-making visits, look for us at the end of the section