

Brussels Institute for Advanced Studies Fellows Brochure



2021-2022



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2021-2022

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About BrIAS

The newly founded Brussels Institute for Advanced Studies (BrIAS), co-founded by the Université libre de Bruxelles (ULB) and the Vrije Universiteit Brussel (VUB) will act as an incubator of ideas and research by focusing on current and urgent societal challenges.

Located in the heart of Brussels, it attracts the very best scientists, artists or designers, coming from various fields or countries and without any philosophical restrictions. It provides the opportunity to work in an atmosphere of complete freedom, collaboration, mutual emulation and cross-fertilisation. BrIAS facilitates collaborations with countries facing critical challenges pertaining to sustainability.

Follow us on [LinkedIn](#), [Facebook](#), [Youtube](#), and our website (<https://brias.be/>) for more information about BrIAS, our mission statement and vision, and our upcoming events!



Figure 1 BrIAS building at USquare Campus.

Vision

The vision of the Brussels Institute for Advanced Studies is to create an environment which is an incubator of ideas, with no philosophical or political restrictions, where top researchers, coming from diverse fields, are given the opportunity of pursuing their research in an atmosphere of total freedom,

collaboration, mutual emulation and cross-fertilisation.

This vision supports the longstanding traditions and aspirations of both the Université Libre de Bruxelles (ULB) and Vrije Universiteit Brussel (VUB) of breaking down the walls of ignorance and dogmatism through science, without taboos or prejudice.

About the BrIAS research theme

In 2021-2022, BrIAS' first interdisciplinary research theme is ***The past, present and future of food, climate and sustainability.*** BrIAS will approach this topic from a wide array of viewpoints, with the input of scholars from agricultural sciences, anthropology, archaeology, biology, biotechnology, chemistry, ecology, economic botany, economics, ethnography, history, hydrology, law, medicine, political sciences, sociology, and urban studies. In addition, BrIAS will involve policy makers and NGOs at a national and supranational level as well as start-ups and companies from Brussels and beyond. Attention will also be given to legal aspects of future agricultural and food technologies, and to medical and nutritional aspects of food.

The academic program has been subdivided into different sub-themes based on the expertise and research excellence of our teams at the VUB and ULB:

- Climate change and society over the past two millennia
- Food for plants - waste for food?
- Food systems and green deal policies in and beyond Europe
- Agriculture and food consumption in North-East Africa (6000 BC – present): 8,000 years of resilience, adaptation and innovation in the face of drought stress and climate change

Read more about our research theme and subthemes in the next section!

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BrIAS Themes and Sub-themes

The Past, Present and Future of Food, Climate Change and Sustainability

Under the general heading 'food', BrIAS will approach this topic from a wide array of viewpoints, with the input of scholars from biology, chemistry, ecology, agricultural sciences, hydrology, anthropology, ethnography, political sciences, biotechnology, sociology, economic botany, economics, ecology, urban studies, history, archaeology, medicine and law. In addition, BrIAS will involve policy makers and NGOs at a national and supranational level. Attention will be given to legal aspects of future agricultural and food technologies, and to medical and nutritional aspects of food. In order to preserve coherence and inspired by current societal and academic debates, we have identified one core theme that will receive special attention in the activities of BrIAS in 2021-2022:

The world's future food supply is in jeopardy. The prospect of fast-growing populations combined with environmental degradation and shrinking agricultural yields because of the climate crisis has urged researchers from all disciplines to develop new ways of thinking about food security and sustainability. The Brussels Institute of Advanced Studies (BrIAS) wants to bring together top experts working on this topic and share their insights with the academic community and policy makers.

Feeding the population has been a main concern of societies throughout human history, as the vagaries of the weather and other natural and human catastrophes frequently caused famine and hardship. 'Give us our daily bread' reflects an ever-present fear of hunger and starvation. However, it was only in modern times that this concern reached a global scale, when it was coupled to the spectre of global overpopulation and the degradation of the environment. Most famously, Thomas Malthus (1766-1834) in his essay on the principle of population warned about increasing poverty if population was to grow unrestrainedly, giving birth to a concept that it is at the heart of modern social theories. Less well-known is the response of William Godwin, who in 1820 calculated that the world could sustain a population of 8 billion people. At the time, world population was nowhere near that figure, but it has grown exponentially since. Inspired by the catastrophic experiences of his lifetime and the awareness of the collapse of earlier civilizations, William Vogt in 1948 voiced ecological concerns about rampant population growth, which threatened the future of 'civilized existence'. Similar apocalyptic views were voiced by Paul Ehrlich in *The Population Bomb* (1968) and by other scholars. However, another constant in human history, as was pointed out by Esther Boserup, is that demographic growth drives innovation in agriculture and food production. The Green Revolution came in time to feed the ever-growing populations, and may even have stimulated growth, while the realization emerged that largescale famines in the modern world resulted from societal failure.

However, the detrimental impact of intensive modern agriculture has subsequently been recognized. Current modes of intensive agriculture cause long-term damages to the environment due to the depletion of water and chemical pollution, which will eventually prevent the further use of soil for next generations. In addition, the awareness of climate change has increased worries about the sustainability of world population and current food systems. With the emergence of a better understanding of past climate change and the recognition that current global warming is manmade came increasing concerns for the future of humankind. Fears for the future have sparked in interest in the past, as theories that ascribe the collapse of past civilizations, ranging from the Mayas to the Roman Empire, to climate change and failing food

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supply systems are widely accepted. The link with societal concerns for the 21st century is obvious.

By 2050, society will be challenged to almost double food production from existing land areas to feed more than nine billion people. According to FAO, achieving global food security and eliminating malnutrition are among the most challenging issues humanity must face. Policy makers, scientists and the general public recognize that policies, agricultural practices and food production have to change in order to guarantee the long-term wellbeing and sustainability of future generations. Agricultural development must combine fundamental research with advanced technologies to produce more healthy food with fewer inputs.

Researchers across academic disciplines will develop an integrated program on the past, present and future of food, climate change and sustainability. This theme, which is at the heart of the BrIAS project, is covered by five perspectives:

- the impact of climate change on Eurasian societies from antiquity to the present
- the resilience of agricultural practices and societies in North-East Africa
- the adaptability of crops to future climate conditions in Europe
- food systems and Green Deal policies in and beyond Europe
- innovations in food technologies to create sustainable food products

Climate change and society over the past two millennia

Paul Erdkamp

Professor of Ancient History, VUB

This part of the project aims to critically discuss the assumed direct link between climate change and a society's ability to feed its population. It is often claimed that temperature and population were positively linked, with population levels rising when average temperature rose and going down when temperature fell (Galloway 1986; Malanima 2013, 72-73; Kennett and Marwan 2015, 2; Lee et al. 2016; Bevan et al. 2018). Some even go so far as to causally link sunspot activity and population (Wiener 2018, 17). Such views have led to the wide acceptance of ideas that connect climatic 'cold spells' to societal collapse. In contrast, many historians and archaeologists dispute the universal link between climate and society and point to the various degrees of resilience in past societies. It has been pointed out that, on the scale of the entire Holocene, there seems to be no correlation between climate and society. Until the onset of Global Warming, the long-term climatic trend was one of decreasing temperature and humidity. Despite fluctuations in temperature and humidity, which were limited compared to the effects of Global Warming, temperature and precipitation saw a declining trend over the millennia. At the same time, however, population levels, societal complexity and life expectancy increased significantly. It would seem that humans were rather resilient in the face of adverse climate change. From a different perspective, however, the image reverses. Some of the deadliest famines in historical times occurred as a result of extreme weather phenomena. Despite differing degrees of vulnerability, societies clearly were susceptible to weather extremes.

But then again, it might have been precisely such catastrophic experiences and the challenges posed by worsening conditions that stimulated societies to adapt and develop institutions and mechanisms that increased their resilience. It may be significant that, in Europe at least, it were the more northern countries that emerged strongest from the Little Ice Age. In general, expansion during beneficial circumstances does not logically imply contraction during unfavourable conditions, since societies were not passive subjects of their environment. Hence,

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it is entirely possible that favourable climate conditions stimulated demographic growth more often than that an adverse climate change caused demographic decline.

Food for plants - waste for food?

David Cannella
Assistant Professor

Christian Hermans
F.R.S.-FNRS Research Associate
Crop Production and Biostimulation Laboratory, Interfaculty School of Bioengineers, ULB

Global climate change, towards higher temperature, greater aridity and more frequent erratic climate events, become a major threat to agricultural sustainability and food security. Hence, enhancing crop resilience to climate change is a major challenge facing the global agricultural community. Plant breeding has delivered substantial productivity gains by developing high-yielding crop varieties but requiring high input, hence negatively impacting the environment. Today, a pivotal success is the creation of so-called 'smart' crop varieties, which yield more with fewer soil resources and protection products.

Plant food waste constitute parts indigestible by humans with no nutritional value. There is a better end for food waste than throwing away. Bio-based green technologies are transforming biomass into useful commodities through light aided enzymatic reaction (photobiocatalysis). Such processes can transform bio-resources into useful biomolecules, biomaterials, and biofuels.

Food systems and green deal policies in and beyond Europe

Nel de Mûelenaere
Professor of Contemporary History, VUB

Today, we are on the cusp of the most fundamental reform of European food policy since the introduction of the Common Agricultural Policy (CAP) in 1962. After decades of stimulating intensification, expansion and industrialisation in the agricultural sector, the EU has recognised that while succeeding in feeding Europeans, the CAP has also caused environmental degradation, the demise of small farming and nutrition-related health issues. With the European Green Deal (2019), the EU departs from former agricultural policy and has replaced the old dogma of maximising productivity at all costs with the new dogma of sustainability. Its central Farm to Fork strategy takes an integrated view on food production, trade, transport and consumption and aims to make European food systems more healthy and more sustainable.

In the coming years, European industries and citizens can expect a series of sector-specific policies and investments, as the green transition and climate neutrality becomes a central part of Europe's post-Covid recovery plan. It remains unclear, however, how these policies will land. The Green Deal sets a broad and comprehensive transition agenda towards climate neutrality in 2050 that will be filled in with concrete measures. Agriculture and food will be among the most challenging policy areas to transition, with strongly conflicting views held among stakeholders from the food industry, farmers' organisations and consumers, to environmental protection advocates. Many questions remain unanswered. How will the European Commission reconcile the (nationally) fragmented needs of farmers, industries and consumers with its principles of sustainability and environmental protection? Who will define what social, environmental and economic sustainability should look like, which dimensions should be

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prioritised, and what policies should be adopted on different levels to obtain it? Does the key to more sustainability and resilience lie in a neo-traditional approach towards farming or innovative new technologies? And how could and should the focus on sustainability impact European trade policies in the global South? And how does the European Green Deal compare with policies on agri-food, sustainability and climate adaptability elsewhere in the world?

Agriculture and food consumption in North-East Africa (6000 BC – present): 8,000 years of resilience, adaptation and innovation in the face of drought stress and climate change.

Dr. ir. Frits Heinrich

Roman agricultural and food historian | Archaeobotanist

Department of History | Social and Cultural Food Studies (FOST), VUB

Department of Chemistry | Analytical, Environmental and Geo-Chemistry (AMGC), VUB

North-East Africa is an ideal test laboratory for the study of long-term trends in human interactions with their environment, especially with regards to agricultural strategies and choices related to drought, salinity, and water stress. The area's agricultural, food and climatic history is documented well both in terms of historical and archaeological evidence, offering much potential for the study of diachronic changes into the circumstances under which agriculture took place and how people adapted to changes in those circumstances. Relevant in this context is that throughout its history the region furthermore played an important role as a corridor for the diffusion of crops, ideas and technologies between the Mediterranean, East and West Africa, and India.

This BrIAS sub-theme focuses on both long-term historical trends as well as modern case studies in agricultural, technological and food culture adaptation, innovation and resilience in the face of drought and water stress and environmental deterioration due to (historical) climate change from an interdisciplinary perspective. The sub-theme therefore welcomes experts and contributions from any historical period as well as the present. While the geographic focus of the sub-theme is on North-East Africa, comparative perspectives on other regions in which drought and irrigation feature prominently are also encouraged.

The sub-theme aims to bring together scholars from diverse fields including agricultural and food history, development and environmental economics, agronomy, hydrology, plant biology and biochemistry, botany and archaeobotany, Egyptology, archaeology, papyrology and others. In doing so this sub-theme hopes to facilitate interdisciplinary discussion and exchange and the conception of new perspectives on both historical questions and modern challenges.

Topics that may feature within the sub-theme include: crop selection and agricultural decision making, fuel use in food preparation, diversity in irrigation technology in relation to environmental circumstances and water sourcing, irrigation and social cooperation, collective action and state formation, agricultural tax regimes, the role and influence of colonial powers on agriculture and food consumption since Antiquity, plant responses to drought, traditional food processing, preparation and preservation technologies, the nutritional content of crops and prepared foodstuffs, crop biodiversity, food security and risk management, plant phenotypic plasticity and adaptability, carbon isotope discrimination and plant water status in ancient and modern plant remains, societal resilience and climate change, and the use of wild plant resources.

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BrIAS Activities May – December 2021

May 2021

- Monday, 10 May 2021 **BrIAS Talk:** *Eat like an Egyptian: Interdisciplinary insights into food and (mal)nutrition in Roman Egypt*, Dr. ir. Frits Heinrich (VUB)
- Wednesday, 12 May 2021 **BrIAS Talk:** *Food for plants - waste for food?*, Professor Dr. Christian Hermans and Professor Dr. David Cannella (ULB)

September 2021

- 28 September 2021 **BrIAS Workshop:** Diet, Health and Nutrition. Perspectives from the Past.

November 2021

- 12 November 2021 **BrIAS Talks:** *Biostimulants*, ir. Guillaume Wegria (Fytekco)
- 17 November 2021 **BrIAS Talks:** *Alimentation, élevage et émergence de maladies à potentiel pandémique: recherche, expertise et communication*, Professor Dr. Marius Gilbert (ULB)
- 17 November 2021 **BrIAS Talks:** *Voeding: Verlosser of Venijn?*, Professor Dr. Elisabeth De Waele (VUB/UZ Brussel)
- 24 November 2021 **BrIAS Talks:** *Pain inventu, pain perdu?*, Professor Dr. Frédéric Debaste (ULB)
- 24 November 2021 **BrIAS Talks:** *The EU's Farm to Fork Strategy: the difficult road towards a European food policy*, Professor Dr. Erik Mathijs (KU Leuven)

December 2021

- 15 December 2021 **BrIAS Forum:** *Long term, evidenced-based governance for protein diversification.*
 - 16 December 2021 **BrIAS Talks:** *Photonics enhanced sensors for food safety screening*, Professor Dr. ir. Wendy Meulebroeck (VUB)

BrIAS Activities January – April 2022

January 2022

- Wednesday, 19 January 2022 **BrIAS Workshop 01:** Transdisciplinarity in agricultural and food sciences.
- Thursday, 20 January 2022 **BrIAS Workshop 02:** Eating From the Wild. Interdisciplinary Perspectives on Wild Plant Use and Foraged Food.
- Wednesday, 26 January 2022 **BrIAS Forum 01:** Climate-smart agriculture for food security.
- Thursday, 27 January 2022 **BrIAS Talks**
 - **T01** *Agriculture and land use in EU climate policy*, BrIAS Fellow Professor Dr. Alan Matthews (Trinity College Dublin, Ireland)
 - **T02** *Can we improve crop photosynthesis to increase sustainable crop production?*, BrIAS Fellow Professor Dr. Mark Aarts (Wageningen University and Research, The Netherlands)
- Monday, 31 January 2022 **BrIAS Forum 02:** Fantastic food Hemp: big opportunities from an ancient weed.

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February 2022

- Wednesday, 2 February 2022 **BrIAS Talk** by special guest Professor Dr. Randall Wisser (INRAE, Montpellier, France): *Deconstructing and bypassing maladaptation to mine diversity in maize.*
- Thursday, 3 February 2022 **BrIAS Talks**
 - **T03** *Pizza: an ancient product in constant evolution*, BrIAS Fellow Professor Dr. Antonella Pasqualone (University of Bari, Italy)
 - **T04** *Opportunism and complexity in biology and crop improvement: from discovery to prediction with genomics and phenomics*, BrIAS Fellow Professor Dr. Seth Murray (Texas A&M University, United States of America)
- Monday, 7 February 2022 **BrIAS Talks**
 - **T05** *The health, environmental and resilience aspects of sustainable diets in Europe – Synergies and trade-offs*, BrIAS Fellow Professor Dr. Pauline Scheelbeek (London School of Hygiene and Tropical Medicine, United Kingdom)
 - **T06** *Selenium biofortification: strategies, main outcomes and relevance for human health*, BrIAS Fellow Michela Schiavon (University of Turin, Italy)
- Tuesday, 8 February 2022 **BrIAS Workshop W03** *Upcycled food: challenges and opportunities.*
- Wednesday, 9 February 2022 **BrIAS Workshop W04** *Photosynthesis and primary production.*
- Friday, 11 February 2022 **BrIAS Workshop W05** *Mineral nutrition of plants – implication for human health.*
- Tuesday, 15 February 2022 **BrIAS Forum F03** *Implications of the European Green Deal for agri-food trade with developing countries.*
- Wednesday, 16 February 2022 **BrIAS Forum F04** *The past, present and future of food innovation.* Guest speakers: Dr. Adam Preslar (CTO, Hazel Technologies, Inc.), Dr. ir. Frédéric Debaste (Bioengineering School and Polytechnic School of Brussels, Université libre de Bruxelles), and Mr. Yannick Schandene (Co-Founder, Fermenthings).
- Thursday, 17 February 2022 **BrIAS Workshop W06** *What can we learn from the evolution of EU agricultural policy.*
- Wednesday, 23 February 2022 **BrIAS Talk Extra** *Radiocesium contamination in agricultural products*, BrIAS Fellow Natsuko Kobayashi (University of Tokyo, Japan)
- Thursday, 24 February 2022 **BrIAS Talks**
 - **T07** *Developing climate resilience agriculture policies in Asia Pacific, framing the futures food system*, BrIAS Fellow Dr. Rathana Peou Norbert-Munns (Bangladesh Centre of Advanced Studies/CCAFS, Thailand)
 - **T08** *Evolution and agronomy vs. disease globalization and climate change: How we can leverage ecological niches to help citrus production survive*, BrIAS Fellow Professor Dr. Christopher Vincent (University of Florida, United States of America)

March 2022

- Tuesday, 1 March 2022 **BrIAS Forum F05** *Sustainable food systems in Europe and beyond: what to expect?*
- Thursday, 3 March 2022 **BrIAS Talks**

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- **T09** Diversity in composition of modern and older types of wheat, BrIAS Fellow Professor Dr. Peter Shewry (Rothamsted Research & University of Reading, United Kingdom)
- **T10** Climate resilient cereal crops in Europe, Dr. Jorge del Cueto Chocano (Crop Production and Biostimulation Laboratory (CPBL), Université libre de Bruxelles, Belgium)
- Friday, 4 March 2022 **BrIAS Talks**
 - **T11** BrIAS Fellow Professor Dr. Andrea Pieroni (University of Gastronomic Sciences, Italy) – Cancelled due to Covid; Rescheduled for late April / early May 2022
- Tuesday, 8 March 2022 **BrIAS Talks**
 - **T12** *Fostering EU food democracy*. BrIAS Fellow Professor Dr. Jeroen Candel (Wageningen University and Research, The Netherlands)
 - **T13** *System genetics to decipher how plants make sense of multiple environmental cues*. BrIAS Fellow Professor Dr. Hatem Rouached (Michigan State University, United States of America)
- Wednesday, 16 March 2022 **BrIAS Workshop W07** *Biostimulation and Plant Protection*.
- Thursday, 17 March 2022 **BrIAS Talks**
 - **T14** *Agriculture, risk and resilience strategies among early farmers (6th to 3rd millennium BC) in the Northwestern Mediterranean*. BrIAS Fellow Professor Dr. Ferran Antolín (Deutsches Archäologisches Institut, Germany)
 - **T15** *Exploiting the natural variation in the model plant Arabidopsis for improving nutrient usage in crops*. BrIAS Fellow Dr. Taraka Ramji Moturu (Crop Production and Biostimulation Laboratory (CPBL), Université libre de Bruxelles, Belgium)
- Thursday, 24 March 2022 **BrIAS Talks**
 - **T16** *Nanotechnology in food industry*. BrIAS Fellow Dr. Gabriela Berto (University of São Paulo, Brazil)
 - **T17** Genetically engineered microorganisms in food technology. BrIAS Fellow Professor Dr. Fernando Segato (University of São Paulo, Brazil)
- Wednesday, 30 March 2022 **BrIAS Forum F06** *New frontiers of food production and food waste upcycling*. Guest speakers: Julien Jacquet (CEO, Permafungi), Prof. Dr. em. Max Mergeay (Université libre de Bruxelles and SCK CEN, Belgium), and Dr. ir. Natalie Leys (Space Life Science Research program at SCK CEN, Belgium)
- Thursday, 31 March 2022 **BrIAS Talks**
 - **T18** *Connecting past to present – a long term view of changing crops, agriculture, and foodways in northern Sudan*. BrIAS Fellow Dr. Philippa Ryan (Royal Kew Botanical Gardens, United Kingdom)
 - **T19** *Gastronomy in the Capital of Europe: a Very Short History*. Professor Dr. em. Peter Scholliers (Vrije Universiteit Brussel, Belgium)

April 2022

- Tuesday, 5 April 2022 **BrIAS Workshop W08 Part 1** *Long-term perspectives on Foodways & Agriculture in North East Africa*.

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- Wednesday, 6 April 2022 **BrIAS Workshop W08 Part 2** *Long-term perspectives on Foodways & Agriculture in North East Africa.*
- Thursday, 7 April 2022 **BrIAS Talks**
 - **T20** *Animal resources and environments in the south-eastern Mediterranean: shaping food production in the Graeco-Roman period*, BrIAS Fellow Dr. Mauro Rizzetto (American School of Classical Studies at Athens, Greece)
 - **T21** *System biology approach to redesign root morphology in oilseed rape*, BrIAS Fellow Dr. Claudia Chiodi (Crop Production and Biostimulation Laboratory (CPBL), Université libre de Bruxelles, Belgium)
- Tuesday, 12 April 2022 **BrIAS Talks**
 - **T22** *Vaccine-like alternative method for plant protection: stimulating the innate immune system of plants*, BrIAS Fellow Dr. Marco Zarattini (Crop Production and Biostimulation Laboratory (CPBL), Université libre de Bruxelles, Belgium)
- Wednesday, 13 April 2022 **BrIAS Workshop W09** *The long term influence of Imperialism, Colonialism and Acculturation on Agricultural and Dietary change in Africa.*
- Thursday, 14 April 2022 **BrIAS Talks**
 - **T23** Guest Speakers to be announced from the Food and Agricultural Organisation (FAO Brussels).
 - **T24** Closing session by the BrIAS Team.
- To be announced **BrIAS Talks**
 - **T11** BrIAS Fellow Professor Dr. Andrea Pieroni (University of Gastronomic Sciences, Italy) – Rescheduled for Fall 2022
- Tuesday, 26 April 2022 **BrIAS Workshop W10** *Foresight planning and scenarios development for resilient food systems.*

June 2022

- Thursday, 16 June 2022 **BrIAS Workshop Part 1** *Climate Change & Society: Perspectives from Past & Present.*
- Friday, 17 June 2022 **BrIAS Workshop Part 2** *Climate Change & Society: Perspectives from Past & Present.*

Invited Speakers and Partners of BrIAS

Universities and Scientific Research Institutions (total 51):

- CNRS Paris (France)
- National History Museum Paris (France)
- University of Barcelona (Spain)
- Czech University of Life Sciences Prague (Czech Republic)
- Center of Archaeological Research in Metz (France)
- INRAE (France)
- SCK CEN (Belgium)
- European Space Agency (European organisation)
- VIB Department of Plant Sciences Biology Ghent University (Belgium)
- Catholic University of Sacro Cuore (Italy)
- Wye College University of London (UK)
- University of Hohenheim (Germany)

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- Manchester University (UK)
- Colorado State University (USA)
- University of Liege (Belgium)
- Michigan State University (USA)
- University of Guelph (Canada)
- Drexel University (USA)
- University of Queensland (Australia)
- University of Rostock (Germany)
- Utrecht University (The Netherlands)
- Czech Academy of Science (Czech Republic)
- University of Oxford (UK)
- Brunel University (UK)
- German Institute for Food Technology (Germany)
- University of Namur (Belgium)
- University of York (UK)
- Max Planck Institute for Plant Breeding and Research (Germany)
- University of Padova (Italy)
- University of California Los Angeles (USA)
- University of Michigan Ann Arbor (USA)
- Marburg University (Germany)
- University of Bonn (Germany)
- KU Leuven (Belgium)
- Ludwig Maximilian University (Germany)
- University of Naples L'Orientale (Italy)
- Michigan Technological University (USA)
- The Ohio State University (USA)
- Leiden University (The Netherlands)
- Newcastle University (UK)
- University of Antwerp (Belgium)
- University of East Anglia (UK)
- University of Geneva (Switzerland)
- University of Bern (Switzerland)
- Technische Universität Wien (Austria)
- University of Sussex (UK)
- SciencesPo Paris (France)
- Erasmus University Rotterdam (The Netherlands)
- Erasmus School of Social and Behavioural Sciences (ESSB) (The Netherlands)
- Universidade de Coimbra (Portugal)
- German Institute for Global and Area Studies (Germany)

Policy Centres/Institutions (total 12):

- European Centre for Development Policy Management (European organisation)
- Directorate of the French Treasury (France)
- Council for Agricultural Research and Economics (CREA)
- German Agency for International Development (Germany)
- Agricultural Business Chamber of South Africa (South Africa)
- Alliance for a Green Revolution in Africa (South Africa)
- Bureau for Food and Agricultural Policy in South Africa (South Africa)

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- FAO Regional Office Asia and the Pacific (Thailand)
- FAO Brussels (Belgium)
- European Commission (Belgium)
- EAT Forum (Norway)
- The Food Foundation

Companies (total 12):

- LaavaTech (Estonia)
- SenseGrass (India, USA, France, Chile)
- CleanTech Region Solutions (Sweden)
- European Industrial Hemp Association (European Organisation)
- CANBE CBD FARM (Belgium)
- Hazel Technologies, Inc. (USA, UK)
- Permafungi (Belgium)
- Fermenthings (Belgium)
- Co-op UK (UK)
- Biotalys NV (Belgium)
- FytoFend SA (Belgium)
- Fytekko (Belgium)

Introducing the BrIAS Team

The BrIAS Directors

Prof. Dr. em. Frank Deconinck (VUB)



obtained his PhD in Medical Physics from the VUB. He was research associate at the University of California in San Francisco (UCSF) and researcher at Brookhaven

National Laboratory. He is Professor Em. of Medical Physics at VUB. In the nuclear field, he is honorary chairman of the board of governors of the Belgian Nuclear Research Centre (SCK CEN), and the European Nuclear Society. In the socio-cultural field he organised, together with Mrs. Deconinck-De Ries, the exhibition “Tactile Graphic Art”, accessible by blind and visually impaired persons, and selected in 1989 by UNESCO for the U.N. World decade for cultural development. His main research domain was medical imaging and image processing, with a particular emphasis on nuclear scintigraphy and magnetic resonance imaging. He also researched the way we understand graphical image information to help translate this information to blind persons.

Keywords

Nuclear science, Image processing and understanding, Technology for blind people

Professor Dr. Serge Jaumain (ULB) is



Professor of Contemporary History at the ULB where he is also co-director of AmericaS – the Interdisciplinary Center for the Study of America. He serves as Advisor to the

Rector for Development Cooperation and is the President of the NGO ULB-Cooperation and the President of the International Scientific Council of the AUF (*Agence universitaire de la francophonie*). He has formerly served as Vice Rector for International Relations at the ULB (2006-2016) and as President of the Brussels Studies Institute (2010-2020). He published or directed more than 30 books including three dictionaries. His research focuses mainly on the history of mass distribution, French-speaking immigration in America, Canadian history and the history of tourism.

Keywords

History, Tourism, migration, Canada, Brussels

Personal webpage

<https://mmc.centresphisoc.ulb.be/en/user/665>

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BrIAS Administrative Support Manager

ir. Annette M. Hansen, MSc (Oxon.) coordinates the day-to-day activities, logistics, website, and finances of BrIAS. She is an agricultural and food historian as well as an (ethno)archaeobotanist specialised in the Islamic world. After studying Classical and Near Eastern Archaeology and Arabic Studies (BA, 2010) at Bryn Mawr College, she obtained an MSc in Archaeological Science at the University of Oxford (Keble College, 2012). She is currently completing her PhD dissertation: *The Agricultural Economy of Southern Bilad as-Sham, from the Byzantine-Islamic transition through the Ottoman period* in which she integrates written and (ethno-)archaeobotanical sources (Groningen Institute of Archaeology, The Netherlands). She is also a Research Associate at the research group Social and Cultural Food Studies (FOST, History) at the Vrije Universiteit Brussel. Annette is a senior archaeobotanist at different archaeological projects in Jordan, Israel and Sudan and is also involved in historical farming experiments in the Netherlands.



Keywords

Archaeobotany, Food and Agricultural History, Islamic History and Archaeology, Traditional Farming

Links to research websites

<https://rug.academia.edu/AnnetteHansen>

Brussels Institute for Advanced Studies
2021-2022

BrIAS Program Directors

Professor Dr. Christian Hermans (ULB)



coordinates the BrIAS subtheme *Food for plants - waste for food?* Hermans is an F.R.S.-FNRS research associate and director of the Crop Production and Biostimulation Laboratory at the Interfaculty School

of Bioengineers, ULB. He is currently the coordinator of an EU network on Sustainable Crop Production. He gained his PhD degree from ULB and Geneva University, Switzerland. He was a postdoctoral fellow at Colorado State University, USA. The environmentally sustainable intensification of agricultural production is the core research theme of the Crop Nutrition unit. Crop characteristics are identified for improving resilience, while limiting the environmental footprint.

Keywords

Agronomy, biofortification, crop genetics, mineral nutrition, plant physiology

Professor Dr. Paul Erdkamp coordinates the



BrAS subtheme *Climate change and society over the past two millennia*. Erdkamp is Professor of Ancient History and the director of the research group Social and Cultural Food Studies (FOST) at the VUB and General

Editor of the Palgrave Studies in Ancient Economies. Most of his work deals with the economic history of the Roman world, with a special interest in climate change, nutrition and food supply. Erdkamp is also the Vice Dean of the Faculty of Languages and the Humanities and Head of the Department of History, Archaeology, Art studies and Philosophy.

Keywords

Roman Empire, climate change, economic history, ancient economy, food supply

Brussels Institute for Advanced Studies
2021-2022

BrIAS Academic co-Directors

Professor Dr. Nel de Mûelenaere serves as a BrIAS Academic co-director. She coordinates the BrIAS subtheme



Food systems and green deal policies in and beyond Europe. De Mûelenaere is also a member of research group Social and

Cultural Food Studies (FOST) at the VUB. She is a historian of 19th- and 20th-century Europe, and her research focuses on the relation between humanitarian aid, food and gender during and after the First World War. One strand of her work examines the experiences and impact of female American relief workers in Belgium and France. Another looks at food and living standards of Belgian families during and after WWI and the development of home economics and nutritional science. De Mûelenaere is Chair of the Research Committee of the Faculty of Languages and the Humanities.

Keywords

Food studies, gender history, humanitarian aid, social-economic history, 20th-century Belgium

Professor Dr. David Cannella serves as a



BrIAS Academic co-director. He coordinates the BrIAS subtheme *Food for plants - waste for food?* Cannella is director of the Photobiocatalysis unit, part of the

Crop Production and Biostimulation Laboratory at the Interfaculty School of Bioengineers, ULB. He graduated as biotechnologist from the Sapienza University of Rome, Italy. He obtained his PhD in Biochemistry at the University of Copenhagen, Denmark, and was a visiting scholar in Brazil, Norway and Sweden. He is focusing on the depolymerization of bioresources into simple molecules with great added value, as well as on the synthesis of bio-based materials.

Keywords

Biomass transformation, biostimulants, green chemistry, mycology, photobiocatalysis.

BrIAS Academic co-Directors

Dr. ir. Frits Heinrich serves as a BrIAS Academic co-director. He coordinates the BrIAS sub-theme *Agriculture and food consumption in North-East Africa (6000 BC – present): 8,000 years of resilience, adaptation and innovation in the face of drought stress and climate change*. Frits is currently a Postdoctoral Fellow at the research groups Social and Cultural Food Studies (FOST) and Analytical, Environmental & Geo-Chemistry (AMGC) at VUB. He is an ancient agricultural and food historian as well as an ethnoarchaeobotanist. His primary interests are in the biochemical and nutritional properties of ancient and traditional crops and foodstuffs, traditional food preparation processes and premodern agricultural economics. While his focus is on the Roman world, he is also interested in much longer term agricultural developments in Egypt and Sudan. Frits is currently working on the FWO-funded project *Rethinking Roman Nutrition. Assessing the nutritional biochemistry and stable isotope chemistry of archaeobotanical cereals and pulses from Roman Egypt*, a project which he instigated and co-wrote and which is providing the first empirical data on the nutritional properties of ancient crops. Frits also conducts (ethno)archaeobotanical fieldwork in Egypt, Sudan and Jordan and carries out historical farming experiments in the Netherlands.



Keywords

Ancient history, Agricultural history, Food history, Archaeobotany, Nutritional biochemistry and biotechnology

Links to research websites

<https://www.vub.be/profiel/frits-heinrich>

<https://vub.academia.edu/FritsHeinrich>

Introducing the 2021-2022 Cohort of BrIAS Fellows

Prof. Dr. Mark G.M. Aarts

Wageningen University and Research
 Plant Sciences Group
 Laboratory of Genetics
 Wageningen, The Netherlands



BrIAS subtheme – Food for plants - waste for food?

Research

The Brassicaceae plant family not only holds the best studied plant model, *Arabidopsis thaliana*, but also several less-known species that have adapted to extreme environments, such as *Nocca caerulea*, an extreme Zn/Cd/Ni hyperaccumulator, or *Hirschfeldia incana*, displaying high photosynthesis at high irradiance levels. Mark Aarts and his research team study the molecular basis of these adaptations: which genes are involved and how do they contribute to environmental adaptation? For their research, they use quantitative and molecular genetic approaches as well as comparative genomics and transcriptomics, to identify adaptive genes and alleles, and to determine their biological function.

Keywords

Plant adaptation, abiotic stress tolerance, photosynthesis, natural genetic variation, *Arabidopsis thaliana*

Biography

Mark Aarts studied Plant Breeding at Wageningen University and graduated from the same university with a PhD on designing a transposon tagging system for gene identification in *Arabidopsis thaliana*. After several research positions at Plant Sciences institutes in Wageningen, he started in 2001 as assistant professor at the Laboratory of Genetics. Since 2016 he is full professor, leading a research group investigating the genetics of plant adaptation to the abiotic environment, particularly focussed on the evolution of extreme adaptive traits related to metal hyperaccumulation and -tolerance, and photosynthesis. Currently he also chairs the executive board of the Netherlands Plant Eco-phenotyping Centre, a national research infrastructure hosted by Wageningen University & Research and Utrecht University to provide a state-of-the-art plant phenotyping to plant sciences in the Netherlands.

Link to research website

- <https://www.wur.nl/en/Persons/Mark-prof.dr.-MGM-Mark-Aarts.htm>

Brussels Institute for Advanced Studies

2021-2022

Prof. Dr. Ferran Antolín

Deutsches Archäologisches Institut
 Division of Natural Sciences

and

University of Basel
 Department of Environmental Sciences
 Integrative Prehistory and Archaeological
 Science



BrIAS sub-theme – Agriculture and food consumption in North-East Africa (6000 BC – present): 8,000 years of resilience, adaptation and innovation in the face of drought stress and climate change

Research

He investigated numerous sites from the Western Mediterranean area, Switzerland and the central Balkans, mostly dated to the Neolithic period but reaching up to the Medieval period. His research is characterized by the integration of plant and animal data to discuss the spread of farming and farming models. He now coordinates the Cluster GroundCheck (see link below).

Keywords

Archaeobotany, Mediterranean area, farming societies, agricultural risks, gathering

Biography

Prof. Dr. Ferran Antolín is a Catalan archaeobotanist. He promoted at the Autonomous University of Barcelona and spent his postdoctoral life at the University of Basel. In 2017 he was granted a prestigious SNF-Professorship. In 2021 he became Head of the Division of the Natural Sciences Department of the German Archaeological Institute. He continues as adjunct professor in Basel.

Link to research websites

- <https://www.dainst.org/en/mitarbeiter-detailansicht/-/person-display/4749721>
- <https://ipna.duw.unibas.ch/de/team/antolin-ferran/>
- <https://agrchange.duw.unibas.ch/en/>
- <https://www.dainst.blog/groundcheck/>
- <https://www.researchgate.net/profile/Ferran-Antolin>

Brussels Institute for Advanced Studies
2021-2022

Dr. Gabriela Berto

University of São Paulo
Lorena School of Engineering
Department of Biotechnology



Biography

Dr. Gabriela Berto is researcher involved in a co-operative project between Petrobras (Brazilian largest petroleum corporation) and University of São Paulo. She is a forest engineer and has expertise in bio-based materials, especially nanocellulose production and application.

Link to research websites

- LinkedIn:
<https://www.linkedin.com/in/gabriela-berto-332b7136/>
- Google Scholar:
<https://scholar.google.com/citations?hl=en&user=YSQyewkAAAAJ>

BrIAS subtheme – Food for plants - waste for food?

Research

Dr. Berto's research focusses on the production and application of nanocellulose by combination of biocatalyst and mechanical defibrillation process. This process saves energy on cellulose nanofibrils plant-based production and allows to tailor their properties for specific application, for example in food packing, rheological food modifiers and foam.

Keywords

Nanocellulose, cellulose nanofibrills, glycosyl hydrolyses, endoglucanases, enzyme-cellulose interaction.

Brussels Institute for Advanced Studies

2021-2022

Dr. Jeroen Candel

Wageningen University and Research
 Public Administration and Policy Group



BrIAS subtheme – Food systems and Green Deal policies in and beyond Europe

Research

Dr. Candel's research concentrates on the question of how governments, from local to EU level, can support a transition towards a more sustainable food system. In his most recent publications, he has reflected on the ground-breaking potential of the EU's Farm to Fork Strategy and provided recommendations for improvements of the Common Agricultural Policy. He has also contributed to broader theorization within the political sciences, most notably on policy integration, policy styles and coordination within the European Commission. His research was awarded the Van Poelje Award for best Public Administration dissertation in the Netherlands and Flanders and the Lasswell Prize for best publication in Policy Sciences.

Keywords

Food policy, agricultural policy, European Union politics, food systems, public policy theory

Biography

Dr. Jeroen Candel finished a bachelor in Public Administration and Organisational Science and a master in Public Governance (cum laude) at Utrecht University before completing his PhD research entitled 'Putting food on the table: the European Union governance of the wicked problem of food security' at Wageningen University. He currently works as Associate Professor in food and agricultural policy at Wageningen University, the Netherlands. Apart from his academic duties, Dr. Candel closely engages with policymakers and stakeholders to provide suggestions for improved food governance. He is a member of the Dutch Council on Animal Affairs and the supervisory board of the foundation Transitiecoalitie Voedsel ('the Food transition Coalition').

Link to research websites

- <https://www.wur.nl/nl/Personen/Jeroen-dr.-JJL-Jeroen-Candel-MA.htm>

Brussels Institute for Advanced Studies

2021-2022

Dr. Claudia Chiodi

Université libre de Bruxelles
 Crop Production and Biostimulation
 Laboratory



Biography

Claudia completed her Bachelor in Environmental Sciences and her Master in Agricultural Sciences at University of Padova, Italy. Then, she obtained a scholarship to work on soil DNA extraction for one year before starting her Ph.D.

Link to research websites

- <https://cpbl.sciences.ulb.be/fr/navigation/laboratoire/membres>

BrIAS subtheme – Food for plants - waste for food?

Research

Claudia obtained her Ph.D. at the University of Padova, Italy in Plant Genetics and Molecular Biology. She spent three years working on biotic stresses on sugar beets. In particular, her Ph.D. thesis focused on the genetic resistance to rhizomania virus. After her Ph.D., she started a postdoc at Université Libre de Bruxelles in Plant Genetics and Bioinformatics. Her current project investigates the response of *B. napus* to Nitrogen deficiency.

Keywords

Bioinformatics, Plant Genetics, Biotic and Abiotic Stresses, Nitrogen Uptake, Brassica

Brussels Institute for Advanced Studies

2021-2022

Dr. Jorge Luis Del Cueto Chocano

Université libre de Bruxelles
 Crop Production and Biostimulation
 Laboratory | Project Manager C4FUTURE
 Sus-Crop-ERA-NET Project



BrIAS subtheme – Food for plants - waste for food?

Research

During his PhD in Spain and Denmark, the main goal of Dr. Chocano's project focused on finding the responsible gene of the bitterness in almond and develop molecular markers able to detect and select the sweet genotypes before the tree bears fruits. In 2019, this work was published in the prestigious journal *Science*. Moreover, analysis of secondary metabolites, dormancy and flowering studies, characterization of enzymes and transcriptomics studies were carried out in almonds. During his first postdoc in Switzerland, he approached the problem of brown rot caused by the fungus *Monilinia laxa* in apricots through the creation of new resistant varieties in the frame of organic production of apricots. He developed genetic maps and responsible regions of resistance to the fungus identified by Marker Assisted Selection (MAS), improvement of phenotyping methods and identification of QTLs for resistance to the pathogen were

achieved. During his postdoc in Belgium, he studies the enhancement of new and/or predictive plant breeding technologies and the development of new genotypes leading to new phenotypes towards the release of improved crop varieties that are capable to adapt to future changes in environmental and climatic conditions in Europe. This project could also target improvement of variety selection processes to support agroecological practices. He works with two C4 cereals panels: maize and sorghum, and two stress conditions: nitrogen and hydric limitations. Genome-wide association studies and transcriptomic approaches will be performed in order to achieve the previous mentioned goals.

Keywords

Plant Breeding, Plant Phenotyping, Plant Genetics, Plant Physiology, Agricultural Biotechnology

Biography

Dr. Chocano specialises in Vegetal Biology. He carried out his studies Agronomic Engineering at the University Miguel Hernández (Spain) between 2004-2010. Later, he obtained a Masters in Biotechnology and Biology of the stress of plants at the University of Murcia (Spain). In 2011, he started a PhD in CEBAS-CSIC Murcia at the department of Genetic Breeding in Stones Fruits. During this period, he studied one year at the University of Copenhagen (Denmark). After finishing his PhD, he got a Postdoc Position from 2016-2020 with the research group in fruit growing – Arboriculture at Agroscope Conthey in Switzerland. Since 2021 he manages a Sus-Crop-ERA-NET Project in the CPBL at ULB in Belgium.

Link to research websites

- [CPBL \(ulb.be\)](https://cpbl.ulb.be)
- [Jorge DEL CUETO Chocano \(researchgate.net\)](https://www.researchgate.net/profile/Jorge-DEL-CUETO-Chocano)

Brussels Institute for Advanced Studies

2021-2022

Dr. rer. Nat. Stefan Gerth

Fraunhofer Institute for Integrated
Circuits IIS
Head of Department Application-specific
Methods and Systems
Development Center X-Ray technology



ray technology. In 2020 he got promoted to the Head of Department Application-specific methods and systems.

Link to research websites

<https://www.iis.fraunhofer.de/en/ff/zfp/research-areas/phenotyping.html>

<https://www.iis.fraunhofer.de/en/ff/zfp/tech/dual-energy-verfahren.html>

BrIAS subtheme – Food for plants - waste for food?

Research

Beginning in 2013 Dr. Gerth started to apply Computed Tomography in the field of plant phenotyping as a research assistant at the Fraunhofer Development Center X-ray technology. His group is developing software and hardware solutions to increase the throughput of Computed Tomography and automate the complete imaging pipeline in the data post processing. His main focus is the data driven visualization and automated quantification of features using non-destructive methods.

Keywords

Data analysis, Plant phenotyping, X-ray computed tomography, Root system architecture

Biography

Stefan Gerth finished his PhD thesis in physics end of 2012 at the Friedrich-Alexander-Universität Erlangen-Nürnberg. In April 2016, he became the head of the group “Innovative System Design” within the Fraunhofer Development Center for X-

Brussels Institute for Advanced Studies

2021-2022

Prof. Dr. em. Cormac Ó Gráda

University College Dublin



BrIAS subtheme – Climate change and society over the past two millennia

Research

Cormac Ó Gráda is currently engaged in two major projects. One is a new analysis of the British Industrial Revolution (joint work with Joel Mokyr and Morgan Kelly) which stresses the role of human capital in the form of artisanal skills. This project is under contract with Princeton University Press. The second, which is well advanced thanks to Covid, is tentatively entitled “Dark Figures: Civilian Casualties of the Two World Wars”. He is also involved in a collaborative project on the social mobility of mid-c19 Irish immigrants in the US, which involves the application of cutting edge census linkage algorithms.

Keywords

Famines, the Industrial Revolution, Migration: Ireland

Biography

Cormac Ó Gráda is an Irish economic historian based at University College Dublin, where he is professor emeritus. An economist by training, he is best known from his work on the global history of famine, the economic and demographic history of Ireland, and various aspects of the British Industrial Revolution and international migration. He has also written about the economic history of Ireland’s small Jewish community and on the Little Ice Age.

Link to research websites

- Google Scholar:
<https://scholar.google.com/citations?user=WuMEtZUAAAJ&hl=en>

Brussels Institute for Advanced Studies
 2021-2022

Dr. Heli Huhtamaa

University of Bern
 Institute of History
 Section of Economic, Social and
 Environmental History

and

University of Bern, Oeschger Centre for
 Climate Change Research



Biography

Heli Huhtamaa (b. 1984) obtained a PhD in History from the University of Eastern Finland and a PhD of Science in Climate Sciences from the University of Bern (both received in 2017). She is currently working at the University of Bern, conducting research with the Institute of History and teaching at the Graduate School of Climate Sciences. From Spring 2022, she will lead an interdisciplinary four-year project investigating distal volcanic impacts on climate and society in pre-industrial Europe.

Link to research websites

- https://www.hist.unibe.ch/ueber_uns/personen/huhtamaa_heli/index_ger.html

BrIAS subtheme – Climate change and society over the past two millennia

Research

Huhtamaa's research explores climate–society relationships in the historical past. She is interested in the both sides of these relationships: how climatic changes have influenced human well-being and livelihoods on the one hand, and how humans have adapted to past climatic changes and extremes on the other. Her research focuses mostly on the Northern Europe, from the late Middle Ages to the 19th century.

Keywords

Climate history / historical climatology, Environmental History, Agricultural History, History of Pre-industrial Northern Europe, the Little Ice Age

Brussels Institute for Advanced Studies

2021-2022

Dr. Duncan Keenan-Jones

University of Queensland
 Historical and Philosophical Inquiry/Centre
 for Policy Futures



BrIAS subtheme – Climate change and
 society over the past two millennia

Research

Duncan's research focuses on uncovering the relationship between environment, technology and society in the past, and using this information to help us manage this relationship today. He has current collaborative projects on the climate, flooding and water management in ancient Italy and Lebanon, as well as on how Roman mortar developed and why it is so durable. With the Mithaka Aboriginal Corporation and others, he is investigating Indigenous floodplain management in Australia's Channel Country, in order to help protect and manage this area and make agriculture and grazing in this area more drought resilient and sustainable.

Keywords

Roman Italy, Climate, Water, History,
 Geoarchaeology

Biography

Duncan is Lecturer in Ancient History at the University of Queensland. He is an affiliate of UQ's Centre for Policy Futures, having been a fellow there in 2020. Before taking up the position at UQ, he held postdoctoral positions at the Collegium de Lyon (2017-2018), University of Glasgow (2014 - 2017) and the University of Illinois, Urbana-Champaign (2011-2014). Duncan's doctoral thesis (Macquarie University, 2011), investigated the creation and social and environmental impacts of a unique, regional water supply network. Before his Masters of Arts in Ancient History (Macquarie, 2006), Duncan completed an honours degree in chemical engineering.

Link to research websites

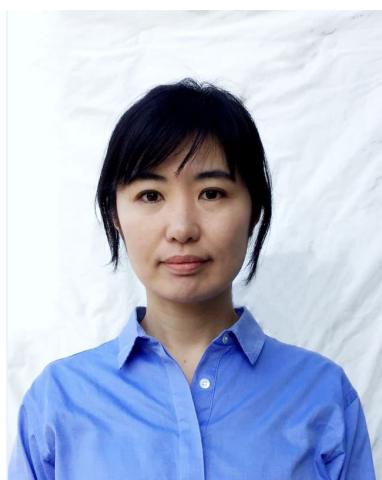
- <https://researchers.uq.edu.au/researcher/22332>
- <https://hass.uq.edu.au/article/2021/10/secrets-subterranean-new-knowledge-surfacing-old-water-ways>

Brussels Institute for Advanced Studies

2021-2022

Prof. Dr. Natsuko I. Kobayashi

Laboratory of Radio Plant Physiology
Isotope Facility for Agricultural Education
and Research
Graduate School of Agricultural and Life
Sciences
The University of Tokyo



Biography

Dr. Kobayashi received BS, MS, and PhD degrees in Agriculture from the University of Tokyo, Japan, in 2001, 2003, and 2009, respectively. After working as a JSPS research fellow (RPD), she has joined the faculty as an Assistant Professor in 2013 and as an Associate Professor in 2018.

Link to research websites

- <https://webpark1571.sakura.ne.jp/radioplantphys/>

BrIAS subtheme – Food for plants - waste for food?

Research

Professor Kobayashi's research focuses on the understanding of the uptake and translocation of minerals and substances in plant and elucidating its mechanism. Her approach is characterized by the use of multiple radionuclides as radiotracer. In the aftermath of the Fukushima Daiichi Nuclear Power Plant accident in 2011, she has been participating in research and educational activities to address the issue of radiocesium contamination of agricultural products.

Keywords

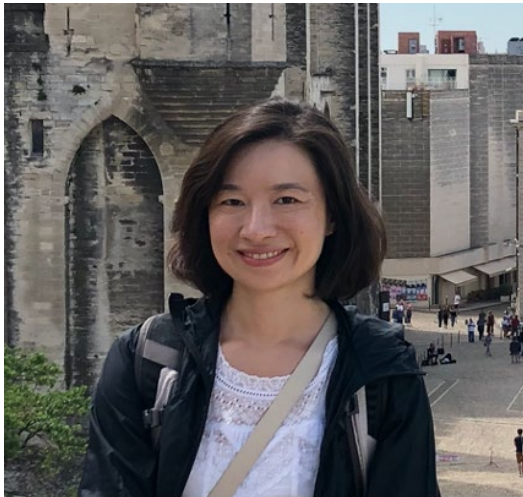
Plant science, Environmental radioactivity, Radiotracer experiment, Rice

Brussels Institute for Advanced Studies

2021-2022

Dr. Elaine Kuanhui Lin

Graduate Institute of Environmental
Education
National Taiwan Normal University



BrIAS subtheme – Climate change and society over the past two millennia

Research

Dr Lin's areas of interest encompasses climate reconstruction, historical climate data science, climate change and societal responses, risk analysis, vulnerability and adaptation studies. Her research centers on the questions of the relationships among climate, environment, and human responses. She and colleagues digitalized the Chinese documentary records related to climate and weather phenomena of the last two millennia into a Reconstructed East Asian Climate Historical Encoded Series (REACHES) database, and utilize the data to reconstruct past climates in China, analyzing climate patterns, abrupt changes, extreme events (e.g., drought, floods, tropical cyclones, and locust outbreaks) and their effects on environments and societal responses. As globally most of the climate-society analysis is case-dependent (qualitative) or is limited to multidecadal to centennial resolutions (quantitative), she and colleagues lately initiate a project to establish an independent database for

digitizing Societal Impact Event Records (SIER). By combining data from the two databases, they aim to bring forth a systematic approach to comprehensively investigate and answer a question of what the human's roles are in manifesting the (climate) consequences – Is climate to be blamed and to what degree?

Keywords

Climate reconstruction, historical climatology, climate-society relations, risk analysis, vulnerability and adaptation

Biography

Dr. Elaine Lin received her M.A. and Ph.D. in Geography from National Taiwan University. Prior to joining the faculty of the Graduate Institute of Environmental Education at National Taiwan Normal University, she worked at the Research Center for Environmental Changes and Center for Sustainability Science at Academic Sinica, Taipei, Taiwan (2013-2019). She is also a research scientist at George Perkins Marsh Institute, Clark University since 2012, and a member of World Social Science Fellows at risk interpretation and action.

Link to research websites

- <https://www.giee.ntnu.edu.tw/en/facultyeng/faculty/Kuanhui-Elaine-LIN-96418382>
- <https://www.researchgate.net/profile/Kuan-hui-Lin>

Brussels Institute for Advanced Studies

2021-2022

Prof. Dr. Alan Matthews

Trinity College Dublin
Department of Economics



Biography

Alan Matthews is Professor Emeritus of European Agricultural Policy at Trinity College Dublin, Ireland. He is a former President of the European Association of Agricultural Economists and has been a member of Ireland's Climate Change Advisory Council. He is a regular contributor to the blog capreform.eu on issues relating to the EU's Common Agricultural Policy.

Link to research websites

- <http://capreform.eu/>

BrIAS subtheme – Food systems and Green Deal policies in and beyond Europe

Research

Alan Matthews' research interests include EU agricultural policy, trade policy, and agricultural trade and development issues. His policy advice has been published by the OECD, the UN Food and Agriculture Organization, the European Parliament, and the European Committee of the Regions. More recently, he has turned his attention to the challenges of reducing agricultural emissions as part of the transition to a climate-neutral Europe.

Keywords

Agriculture, Policy, Trade, Climate

Brussels Institute for Advanced Studies
2021-2022

Dr. Taraka Ramji Moturu

Université libre de Bruxelles
Crop Production and Biostimulation
Laboratory

Link to research websites

- <https://cpbl.sciences.ulb.be/fr/navigation/laboratoire/membres>
- <https://scholar.google.co.in/citations?user=xX8ALDQAAAAJ&hl=en>



BrIAS subtheme – Food for plants - waste for food?

Research

Dr. Moturu's current research is focused on the natural variants of Arabidopsis, characterize them to improve the resilience of the agriculture production with least environmental footprint. His research work could provide potential selection criteria to develop new varieties of crop plants to the breeders.

Keywords

Plant Biology, Natural variations, Arabidopsis, Nitrogen use efficiency

Biography

Dr. Moturu is a plant researcher at ULB. He is very keen on using multi-disciplinary approaches to disrupt the fields of agriculture and crop improvement.

Brussels Institute for Advanced Studies
 2021-2022

Dr. Rathana Peou Norbert-Munns

Utrecht University, Copernicus Center
 FAO Regional Office Asia and the Pacific



analysis within the practice of foresight planning in Food Systems.

Dr. Peou Norbert-Munns brings a depth of experience and expertise within the fields of Foresight and Scenarios Planning in Asia, actively contributing over the last 10 years to the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) as a Regional Scenarios Coordinator first in South Asia, and then in Southeast Asia. In 2021, she joined the FAO Regional Office of Asia and Pacific as their Climate Foresight and Scenarios Development expert.

Link to research websites

- <https://re-imagine.sites.uu.nl/team/>

BrIAS subtheme – Food systems and Green Deal policies in and beyond Europe

Research

Dr. Norbert-Munns' research interests lie in the "4 inviolate principles": food security, water security, energy security and social "health" security with her current research focusing on the futures of Food, Agriculture and Climate Change within the ASEAN Member States (AMS).

Keywords

Climate Foresight and Scenarios Development Expert

Biography

Dr. Rathana Peou Norbert-Munns is an experienced researcher and practitioner on Climate change, Agriculture and Food Security currently based in S.E. Asia. She has an extensive experience in design, implementation, capacity building and

Brussels Institute for Advanced Studies 2021-2022

Prof. Dr. Seth Murray

Professor and Eugene Butler Endowed
Chair
President Elect – Crop Science Society of
America
Texas A&M University
Texas A&M AgriLife Research
Department of Soil and Crop Sciences



BrIAS subtheme – Food for plants - waste
for food?

Research

Dr. Murray's research program focuses on new approaches in high throughput field phenotyping (including unmanned aerial vehicles, UAS i.e. drones), quantitative genetic discovery, gene to phenotype data analytics and applied maize (corn) breeding in Texas, as well as perenniality in maize and sorghum. He has released 9 maize lines, some having been licensed and being grown by Texas farmers, including proprietary hybrids for whiskey. A major focus and impact of his program is graduate student training, chairing 33 committees and serving on another 34 committees. His current scientific research primarily focuses on temporal phenomic prediction and selection of breeding lines using UAS.

Keywords

phenomics, maize, plant breeding, quantitative genetics

Biography

Dr. Murray received his PhD from Cornell University, a BS from Michigan State University and studied abroad at Wageningen University. He teaches a PhD level class in molecular quantitative genetics in plant breeding and an undergraduate class on American agriculture from history to the present. Dr. Murray has served in leadership and editorial roles for the American Seed Trade Association (ASTA), the Crop Science Society of America (CSSA), the National Association of Plant Breeders (NAPB) and the North American Plant Phenotyping Network (NAPPN) among others. He served as the Senior Advisor of Agricultural Systems in the Office of the Chief Scientist at the United States Department of Agriculture. He has a small farm where he has planted a genetic diversity collection of fruit and nut trees, primarily pomegranates and apples for now.

Link to research websites

- *Departmental website:*
<https://soilcrop.tamu.edu/people/murray-seth-c/>
- *Google Scholar:*
<https://scholar.google.com/citations?user=o2U40BEAAAAJ&hl=en>
- *Twitter:*
<https://twitter.com/DrSethMurray>
- *YouTube:*
<https://www.youtube.com/c/sethmurray>

Brussels Institute for Advanced Studies

2021-2022

Prof. Dr. Antonella Pasqualone

University of Bari "Aldo Moro"
 Dept. of Soil, Plant and Food Science
 (Di.S.S.P.A.)
 Food Science and Technology Unit



BrIAS subtheme – Agriculture and food consumption in North-East Africa (6000 BC – present): 8,000 years of resilience, adaptation and innovation in the face of drought stress and climate change

Research

Her main research interests are in the field of Cereal Science and Technology:

- improvement of the nutritional quality of cereal-based foods by incorporating flour from sustainable crops (pulses, acorn);
- formulation and characterization of functional pasta and bakery products, also gluten-free;
- studies on the history and baking systems of flatbreads;
- studies on the activity of polyphenoloxidase in durum wheat and correlations with pasta browning;
- effect of drying and baking on the volatile profile of pasta and bread;
- improvement of bread shelf-life by technological approaches;
- use of durum wheat in bread-making throughout the Mediterranean Basin;
- studies on ethnic foods prepared from faba bean;
- upcycling of food industry waste by addition to cereal-based foods;

• valorisation of traditional cereal-based foods and beverages.

Keywords

Food technology, Cereal-based food, Flatbreads, Traditional foods, Ethnic foods

Biography

Antonella Pasqualone is Associate Professor of Food Science and Technology at the University of Bari, Italy, where she teaches “Cereal technology” (4 ECTS, Master in “Food Science and Technology”), “Food quality and safety certification” (6 ECTS, Bachelor in “Food Science and Technology”) and “Food technologies” (6 ECTS, Master in “Nutrition science for human health”). She is member of the Quality assurance group of the Master course in Food Science and Technology and departmental coordinator for several Erasmus agreements in the Food Technology sector. She is among the founders of the Inter-Departmental Research Center of the University of Bari aimed at Cooperating for the Development of extra-EU Countries (CPS). Habilitated as Full Professor in 2014, she is scientific responsible of several national and international projects and published more than 200 articles in refereed international journals (source = Scopus database), with h-index = 35 (October 2021).

Link to research websites

- University of Bari:
<https://www.uniba.it/docenti/pasqualone-antonella>
- Scopus:
<https://www.scopus.com/authid/detail.uri?authorId=6701732284>
- ResearchGate:
https://www.researchgate.net/profile/Antonella_Pasqualone
- Publons:
<https://publons.com/author/1195784/antonella-pasqualone#profile>
- OrcID: <https://orcid.org/0000-0001-6675-2203>
- Google Scholar:
<https://scholar.google.it/citations?user=ryzeSMgAAAAJ&hl=en&oi=ao>

Brussels Institute for Advanced Studies 2021-2022

Prof. Dr. Andrea Pieroni

University of Gastronomic Sciences



University of Bradford, UK. From January 2009 he was hired as a Professor of Ethnobotany at the University of Pollenzo, Italy. Professor Pieroni has served as the Vice-President and President of the International Society of Ethnobiology (2008-2010). He is the founder and Chief Editor of the Journal of Ethnobiology and Ethnomedicine (Springer Nature) and sits on the boards of diverse international peer-reviewed journals. He was the Rector of the University of Gastronomic Sciences of Pollenzo from October 2017 to August 2021.

Link to research websites

- www.andreapieroni.eu
- <https://www.unisg.it/en/docenti/andreapieroni/>

BrIAS subtheme – Agriculture and food consumption in North-East Africa (6000 BC – present): 8,000 years of resilience, adaptation and innovation in the face of drought stress and climate change

Research

Pieroni's work focuses on temporal and spatial dynamics of folk wild plant knowledge and attached food heritage. In his research, the main targeted communities and study areas are minorities, Diasporas, cultural and geographical boundaries in the Mediterranean, the Balkans, and especially in the Middle East.

Keywords

Ethnobotany, ethnobiology, food heritage, wild food plants, food ecology, foraging

Biography

Trained in medical botany at the University of Pisa, Andrea Pieroni earned his doctorate from the University of Bonn in Germany. He has worked as a Research Assistant at the University of London and, later, as a tenured Lecturer and Senior Lecturer at the

Brussels Institute for Advanced Studies

2021-2022

Dr. Mauro Rizzetto

American School of Classical Studies at
 Athens (ASCSA), Greece.
 Malcolm H. Wiener Laboratory



BrIAS subtheme – Agriculture and food consumption in North-East Africa (6000 BC – present): 8,000 years of resilience, adaptation and innovation in the face of drought stress and climate change

Research

Mauro's PhD thesis focussed on the zooarchaeology of the Late Roman-Early Anglo-Saxon transition in Britain. He specializes in the zooarchaeology of Roman and early medieval Europe. The main object of his studies are domestic animals and their socio-economic role within human communities; methodologically, he specializes on biometrical analyses, applied to the study of domestic animal management, taxonomic identification, and environmental change. He also works on fish remains from Ptolemaic/Roman Egypt and is developing a method for the identification of European archaeological cervid remains. He has been working at a number of archaeological sites in Italy, Britain, France, Greece, Spain, and Egypt,

dating from the Neolithic to the post-medieval period. He is co-editor of *The Oxford Handbook of Zooarchaeology* (Oxford, 2017).

Keywords

Zooarchaeology, human-animal relationships, Roman period, Middle Ages, biometry.

Biography

Dr. Rizzetto is a Research Associate at the American School of Classical Studies at Athens, Greece. He obtained his BSc (2013), MSc (2014), and PhD (2020) from the University of Sheffield (UK), spending study and work periods at the University of Thessaloniki (Greece), Arquex S.L. (Madrid, Spain), Leiden University (the Netherlands), Northeast Fayyūm Lakeshore Project (Egypt), Historic England (Portsmouth, UK), and University of Milan (Italy). He is an active member of the International Council for Archaeozoology (ICAZ) and the Italian Association of Archaeozoology (AIAZ). He co-founded the ICAZ Medieval period Working Group (2021), of which he is Liaison to ICAZ.

Link to research websites

- <https://ascsa.academia.edu/MauroRizzetto>
- <https://www.researchgate.net/profile/Mauro-Rizzetto>
- <https://www.ascsa.edu.gr/research/wiener-laboratory/research/active-research>

Brussels Institute for Advanced Studies

2021-2022

Prof. Dr. Hatem Rouached

Michigan State University
 The Plant Resilience Institute
 Department of Plant, Soil and Microbial
 Sciences



visiting faculty at Carnegie Institution for Science (Stanford, USA, 2016-2018). Concurrently, he was adjunct Professor at Chiang Mai University- Thailand. In 2020, he joined Michigan State University, the Plant Resilience Institute, the Department of Plant, Soil, and Microbial Sciences, and the Plant Resilience Institute, East Lansing, Michigan, USA.

Link to research websites

- <https://www.canr.msu.edu/people/hatem-rouached>
- <https://twitter.com/hatemrouached>

BrIAS subtheme – Food for plants - waste for food?

Research

For two decades, Dr. Rouached acquired expertise in the area of molecular and physiological aspects of plant nutrition. He is using system genetics to study how plants detect, make sense of, and adapt to various nutrient signals.

Keywords

Combinatorial nutrient stress, system genetics, mineral nutrition, signalling crosstalk

Biography

Dr. Rouached gained scientific and managerial skills during his PhD (University of Montpellier, France, 2002-2005), his Postdoc (University of Lausanne, Switzerland, 2005-2009), and as Senior Scientist in Crop Design (BASF Company, Ghent, Belgium, 2010-2012). In 2012, he was recruited at INRA, France. He was then

Brussels Institute for Advanced Studies

2021-2022

Dr. Philippa Ryan

Royal Botanic Gardens, Kew, London,
Interdisciplinary Research



ethnobotany. She completed her PhD in archaeobotany and her MA in archaeology at the Institute of Archaeology, UCL, and her BA in history at Trinity College, Oxford University.

Link to research websites

- <https://www.kew.org/science/our-science/people/philippa-ryan>
- www.philipparyan.com

BrIAS subtheme – Agriculture and food consumption in North-East Africa (6000 BC – present): 8,000 years of resilience, adaptation and innovation in the face of drought stress and climate change

Research

Dr. Ryan's research focuses on local agri- and food-systems and crop histories from past to present, with deep history used to contextualise current crop diversity and practices. Her research is focused on NE Africa, especially in Sudan. She is especially interested in documenting endangered orphan crops and agricultural change, and in linking approaches from the botanical sciences and humanities.

Keywords

Ethnobotany, biocultural heritage, agricultural resilience, crop histories, archaeobotany

Biography

Dr. Ryan is currently a Future Leader Fellow in Plant Science at the Royal Botanic Gardens, Kew, London in the Interdisciplinary Research group. Previously, she worked at the British Museum in the department of Scientific Research, where her research was focused on a combination of archaeobotany and

Brussels Institute for Advanced Studies

2021-2022

Dr. Pauline Scheelbeek

London School of Hygiene & Tropical
 Medicine
 Centre on Climate Change and Planetary
 Health



BrIAS subtheme – Food systems and Green
 Deal policies in and beyond Europe

Research

Pauline's research team focuses on 1) measuring and mapping empirical behaviour change in food systems to inform future scenarios; 2) modelling the impact on health and environmental sustainability of realistic behaviour and environmental change scenarios/solutions for future food systems in Europe, South Africa, India and West Africa and 3) quantifying the externalities in the Global South from food system changes in the Global North; and 4) evaluating the health and environmental impact of planned and implemented local, national and international policies related to food systems nutrition and health.

Keywords

Sustainable food systems, nutrition, trade,
 health impacts, dietary footprints

Biography

Pauline Scheelbeek is an Assistant Professor in nutritional and environmental epidemiology at the London School of Hygiene & Tropical Medicine and the Director of the WHO Collaborating Centre on Climate Change, Health and Sustainable Development. Pauline's research focusses on discovering healthy, sustainable, resilient and realistic solutions that will accelerate transformational food system change, especially in the Global North. Currently she leads the Sustainable and Healthy Diets in Europe (SHEADE) project, co-leads the multi-country Sustainable and Health Food Systems (SHEFS) project in the UK, India and South Africa as well as the Food system Adaptations in Changing Environments in Africa (FACE-Africa) project in the Gambia. Pauline is an active STEM ambassador and frequently organises public engagement activities for school aged children in the UK and sub-Saharan Africa around environment, nutrition and health issues.

Link to research websites

- <https://www.lshtm.ac.uk/research/centres/centre-climate-change-and-planetary-health>
- <https://shefsglobal.lshtm.ac.uk/>
- <https://www.lshtm.ac.uk/research/centres/projects-groups/face-africa>
- Twitter Handles: @LSHTM_Planet & @PaulineScheelb1

Brussels Institute for Advanced Studies

2021-2022

Prof. Dr. Michela Schiavon

University of Turin
 Dipartimento di Scienze Agrarie, Forestali
 e Alimentari (DISAFA)
 Biogeochemistry and Soil fertility Research
 group



BrIAS subtheme – Food for plants - waste
 for food?

Research

Michela Schiavon's research activity was initially focused on unravelling the physiological and molecular mechanisms of heavy metal tolerance and acquisition by crops, and in metal-nutrient interactions during uptake processes. Then, she developed a major interest on the beneficial element selenium and biostimulants, with focus on their mode of action in crops to enhance NUE and resistance to abiotic stress. Further areas of research include the study of the role of emergent classes of phytohormones in root phenotyping and nutrient acquisition by crops and in phosphorus nutrition.

Keywords

Plant nutrition, biofortification, biostimulants, phytoremediation, element interactions.

Biography

Michela Schiavon is Associate Professor in Agriculture Chemistry at Turin University, and Faculty associate member at the Colorado State University (USA). She holds a PhD in Crop Productivity and her main expertise is in plant nutrition and physiology, selenium biofortification, phytoremediation. She has taken responsibilities or has been involved as investigator in one project funded by US National Science Foundation and in national and EU projects. She is also member of the Scientific and Economic Committee of the TEAM-NET (Foundation for Polish Science).

Link to research websites

- <https://www.disafa.unito.it/do/docenti.pl/alias?michela.schiavon#tab-profilo>
- <https://scholar.google.com/citations?user=n2xCpmMAAAAJ&hl=en>
- <https://www.researchgate.net/profile/Michela-Schiavon>

Prof. Dr. Fernando Segato

University of São Paulo
 Lorena School of Engineering
 Department of Biotechnology
 Synthetic and Molecular Biology
 Laboratory



Biography

Fernando Segato is an Associate Professor in the Department of Biotechnology at the Lorena School of Engineering at the University of São Paulo, Brazil. He received his Ph.D. in Molecular Biology and Genetics of Microorganisms from the Ribeirão Preto School of Medicine at the University of São Paulo. Dr. Segato has worked as a post-doc at Oklahoma State University on developing designer of expression systems for hyper protein production.

Link to research websites

- CNPq: <http://lattes.cnpq.br/4768305989343564>
- Google Scholar: <https://scholar.google.com.br/citations?user=26sWtIYAAAAJ&hl=pt-BR&hl=en>
- ORCID: <https://orcid.org/0000-0002-6715-9601>

BrIAS subtheme – Food for plants - waste for food?

Research

Prospection and characterization of microorganisms and proteins of biotechnological interest, exploration of thermophilic fungal genomes, and improvement of fungal cell factories to proteins expression. Professor Segato is interested in the structural biology to design proteins with improved biochemical characteristics.

Keywords

Filamentous fungi, heterologous protein expression, enzymes, biomass and Molecular biology.

Brussels Institute for Advanced Studies

2021-2022

Prof. Dr. em. Peter Shewry

Rothamsted Research
 University of Reading



BrIAS subtheme – Agriculture and food consumption in North-East Africa (6000 BC – present): 8,000 years of resilience, adaptation and innovation in the face of drought stress and climate change

Research

Peter Shewry leads a research programme on the development, structure and composition of cereal grain focusing on wheat and improving the quality for processing and human health (notably dietary fibre and mineral micronutrients). He also has interests in other cereal crops, including barley, sorghum and pearl millet. A wide range of approaches are used in collaboration with experts in different disciplines including analytical biochemistry, classical and molecular genetics, biotechnology and bioimaging.

Keywords

Wheat, grain, proteins, gluten, fibre

Biography

Peter Shewry is currently a project leader at Rothamsted Research and Emeritus Professor at the University of Reading.

Over a 45 year career he has collaborated with many international scientists, including the EU FP7 HEALTHGRAIN project (Exploiting the bioactivity of

European cereal grains for improved nutrition and health benefits).

He is the author of over 500 refereed papers in international journals, has edited or co-edited 19 books (including the 4th edition of *Wheat: Chemistry and Technology* and 2nd edition of *Barley: Chemistry and Technology*) and has written many major reviews and book chapters. He is currently Reviews Editor for *Journal of Cereal Science*.

In 2000 he was awarded the Thomas Burr Osborne medal by the AACC, in 2002 was the joint recipient (with Donald Kasarda) of the Rank Prize for Nutrition, and in 2016 the Clyde H Bailey medal by the ICC. He has received honorary doctorates from the Swedish Agricultural University (2007) and the Budapest University of Technology and Economics (2008) and held the Francqui Chair at KU Leuven for 2016-7.

Brussels Institute for Advanced Studies
 2021-2022

Prof. Dr. Christopher Vincent

University of Florida
 Institute of Food and Agricultural Sciences
 Citrus Research and Education
 Center/Citrus Ecophysiology Lab



Biography

Christopher Vincent began in liberal arts with studies of Spanish and journalism in Arkansas and Chile. After working in extension and research on fruit and nut crops in Arkansas, he obtained a PhD in Interdisciplinary Ecology and the University of Florida, focusing on plant environmental physiology. He now works at the University of Florida, focusing on citrus and other perennial species.

Link to research websites

- <https://www.treephysiologylab.com/>

BrIAS subtheme – Food for plants - waste for food?

Research

My group investigates how plants manage carbon and water movement and photosynthesis in response to environmental factors such as light, temperature, and soil water. Our primary focus is on the subtropical perennial citrus species, and we research both fundamental biological and applied approaches to improve production. Because of the specific challenges facing citrus production, we collaborate broadly to address citrus huanglongbing (“citrus greening disease”).

Keywords

Plant environmental physiology, photosynthesis, carbohydrate transport, water relations, horticulture (tree fruits)

Brussels Institute for Advanced Studies
2021-2022

Prof. Dr. Fiona Williamson

Singapore Management University
School of Social Sciences

Link to research websites

- <https://faculty.smu.edu.sg/profile/fiona-clare-williamson-1066>



BrIAS subtheme – Climate change and society over the past two millennia

Research

Professor Williamson's latest research rests at the nexus of human-environmental-climatic interaction, exploring the dynamics of extreme weathers, society, health, infrastructure, and land transformation within urban Asia.

Keywords

History, climate, environment, Asia

Biography

Fiona Williamson is Associate Professor of Science, Technology and Society at SMU. She specialises in the history of climate, disaster and environment and the history of science in colonial Singapore, Malaysia, and Hong Kong.

Brussels Institute for Advanced Studies

2021-2022

Dr. Marco Zarattini

Université libre de Bruxelles
 Crop Production and Biostimulation
 Laboratory
 PhotoBioCatalysis Unit (Bio-Cat)



Biography

Marco Zarattini is a plant biologist with an interdisciplinary portfolio of expertise in biochemistry, genetics, and physiology of plants. He obtained a Ph.D. in Evolutionary Biology and Ecology and performed research on different aspects of plant biology in several Universities and Research Centres worldwide (Italy, France, Belgium, Ecuador). Today, he is an F.R.S.-FNRS senior postdoctoral fellow.

Link to research websites

- https://twitter.com/marco_zarattini
- <https://www.researchgate.net/profile/Marco-Zarattini-2>

BrIAS subtheme – Food for plants - waste for food?

Research

The research of Marco Zarattini seeks to understand the molecular responses of plants to environmental constraints, such as fungal or bacterial invasion or climate changes. Moreover, he is particularly interested in finding new eco-friendly alternatives to pesticide application by triggering the own immune system of plants.

Keywords

Plant Biology, Plant immunity, Plant-pathogen interactions, Plant responses to climate changes, Cellular Signaling