

ADVANCES >>>

The Newsletter of the Western Academy

Fall 2023



Music for climate action

Climate change can have a profound impact on [our mental and emotional well being](#).

[Tempo! Project](#) founder and Western Academy Visiting Fellow Dr. Lucy Jones believes that music can help us process overwhelming feelings-- like anger, fear, and grief-- so that we may be better equipped to come together in the spirit of climate action.

In October, Jones presented a special concert event in partnership with the Don Wright Faculty of Music, featuring performances by Western University Singers and Les Choristes. This event was supported by the Western Academy for Advanced Research as part of the [Climate Resilient Infrastructure and Buildings](#) (CRIB) research theme.

Read about it [in the Western News](#).



"All of us must be at the table": A collaborative approach to disaster resilience

This year, Canada faced its most devastating wildfire season on record. Many communities are unprepared to face this reality. What will happen as fires and extreme weather events increase in frequency?

This urgent challenge requires collective action from scientists, builders, insurers, and community leaders. The Climate Resilient Infrastructure and Buildings (CRIB) research theme of the Western Academy for Advanced Research (WAFAR) brought together thinkers from across sectors for a fall symposium hosted in partnership with the Institute for Catastrophic Loss Reduction. Participants shared ideas about topics including disaster recovery and mitigation planning, the role of building codes in supporting climate resilience, and social and psychological barriers to climate action.

Read the full story [in the Western News](#).

New developments in the neuroscience of memory

Neuroscientists believe that memories are encoded in electrical activities between neurons. These activities are known as "spikes."

Members of the [Mathematics of Neural Networks](#) theme have discovered a way of analyzing the timing of neural spikes. This new approach may lead to a better understanding of Alzheimer's disease and other memory disorders.

Theme Leader Lyle Muller (Mathematics), Western Fellow Jan Minac (Mathematics) contributing researcher Alexandra Busch (BrainsCAN) contributed their findings to a study that was published in [Physical Review E](#). This research expands upon knowledge produced by the Mathematics of Neural Networks, the first research theme of the Western Academy for Advanced Research. Read about it [here](#) and [in the Western News](#).

Western Academy welcomes renewable energy expert

A circular economy ensures that waste materials can be used to their full potential.

Renewable energy expert Dr. Paola Giudicianni (Institute of Science and Technologies for Sustainable Energy and Mobility, Naples, Italy) investigates ways of transforming agricultural waste into fuel and other useful products.

Giudicianni was in residence at the Western Academy until November 2023. She will return to Western to continue her work with the Nature-inspired solutions team for subsequent visits in 2024. During her residence, Giudicianni was a guest at Malhotra House, a visitor's residence offered to Western by the generous donation of Desh and Ladi Malhotra.



Dr. Paola Giudicianni

Upcoming visitors

>>>January 2024

Katharine Willis, University of Plymouth
(Plymouth, UK),

Smart Cities and Communities

>>>March 2024

Lucy Jones,

Dr. Lucy Jones Center for Science and Society
(Pasadena, CA, USA)

Climate Resilient Infrastructure and Buildings

>>>March—April 2024

Paola Giudicianni, Consiglio Nazionale delle Ricerche (Naples, Italy)

Nature-Inspired Solutions for Carbon Transformation

Innovations in clean technology research

Can wood chips be turned into jet fuel?

Air travel is a significant contributor to global carbon emissions. Western Fellow Naomi Klinghoffer ([Nature-inspired solutions for carbon transformation](#)) is working towards creating sustainable solutions for the aviation industry. Currently, Klinghoffer and her team are investigating the transformation of forestry waste (e.g. wood chips) into sustainable jet fuel.

The CleanTech Conference (November 22nd) showcased Klinghoffer's work alongside other innovations that emerged out of the [Carbon Solutions](#) initiative at Western.

Read about it [in the Western News](#).

Emerging approaches in smart cities and communities: Coming in January 2024

Beginning in January 2024, the Western Academy's newest research theme, "Interdisciplinary Research to Address Technical and Social Barriers in Smart Cities and Communities, will explore emerging social, ethical, economic, and technical challenges by adopting a collaborative and interdisciplinary framework for research, where experts across the university and the world, industry partners, local organizations, government agencies, stakeholders, and policymakers will collaborate to identify solutions and to mitigate potential risks.

Theme Leader Dr. Ayan Sadhu (Civil and Environmental Engineering) will be joined by Western Fellows Drs. Anabel Quan-Haase (Faculty of Media and Information Studies, Sociology) and Abdallah Shami (Electrical and Computer Engineering), and Visiting Fellows Drs. Jalel Ben-Othman (Université Paris) and Katharine Willis (University of Plymouth).

Possibilities for peace in the twenty-first century: Coming in January 2025

Beginning in January 2025, a new research theme, "Exploring possibilities for peace in the twenty-first century," will examine the simultaneous rise of interstate war and international law in the twenty-first century. With an interdisciplinary lens, the team will explore how international law and the international community may adapt to better secure interstate peace today.

The theme will be led by Western Fellows, Professors Ryan Liss (Law), Valerie Oosterveld (Law), and Bipasha Baruah (Gender, Sexuality, and Women's Studies) along with a cohort of Ambassadorial Visiting Fellows, John T. Holmes, Masud Husain and Sabine Nölke, LL.B. '85, (all formerly of Global Affairs Canada). This core team of scholars and policymakers will bring a nuanced understanding of conflict and the role of law in international relations.

[Read more.](#)

The Western Academy for Advanced Research

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