THE PONTIFICAL
ACADEMY OF SCIENCES

BIENNIAL PLENARY

SCIENCE FOR SUSTAINABILITY AND WELLBEING IN THE ANTHROPOCENE

OPPORTUNITIES, CHALLENGES, AND AI

Wednesday, 23-25 September 2024
Casina Pio IV, Vatican City

"As we know, artificial intelligence is an extremely powerful tool, employed in many kinds of human activity: from medicine to the world of work; from culture to the field of communications; from education to politics. It is now safe to assume that its use will increasingly influence the way we live, our social relationships and even the way we conceive of our identity as human beings.

The question of artificial intelligence, however, is often perceived as ambiguous: on the one hand, it generates excitement for the possibilities it offers, while on the other it gives rise to fear for the consequences it foreshadows. In this regard, we could say that all of us, albeit to varying degrees, experience two emotions: we are enthusiastic when we imagine the advances that can result from artificial intelligence but, at the same time, we are fearful when we acknowledge the dangers inherent in its use.

After all, we cannot doubt that the advent of artificial intelligence represents a true cognitive-industrial revolution, which will contribute to the creation of a new social system characterised by complex epochal transformations. For example, artificial intelligence could enable a democratization of access to knowledge, the exponential advancement of scientific research and the possibility of giving demanding and arduous work to machines. Yet at the same time, it could bring with it a greater injustice between advanced and developing nations or between dominant and oppressed social classes, raising the dangerous possibility that a "throwaway culture" be preferred to a "culture of encounter". The significance of these complex transformations is clearly linked to the rapid technological development of artificial intelligence itself….It is precisely this powerful technological progress that makes artificial intelligence at the same time an exciting and fearsome tool, and demands a reflection that is up to the challenge it presents.

In this regard, perhaps we could start from the observation that artificial intelligence is above all else a tool. And it goes without saying that the benefits or harm it will bring will depend on its us

…

Pope Francis addressing the G7 session on artificial intelligence (13-15 June 2024).
Borgo Egnazia (puglia)
Friday, 14 June 2024

Concept Note

It has become ever more evident that humankind deeply impacts Earth systems. The Anthropocene, understood as the growing and lasting human influence on the global environment, was identified by our esteemed PAS Academicians Paul Crutzen (1933-2021), and also Mario Molina (19432020) contributed to related insights. PAS has addressed Anthropocene issues at various workshops before. [1] [1] As the Anthropocene is showing its increasingly dramatic consequences for nature and for people, especially through climate crisis and loss in biodiversity, PAS addresses this in its Plenary 2024. At the same time, the Plenary addresses emerging new science and innovations, in particular Artificial Intelligence, and related opportunities for science and planetary health, and regulatory options to address risks. As always in PAS Plenaries, we shall provide perspectives for future science policies and strategies.

The Anthropocene represents the cumulative effect of human activities on nature and its life forms. The Anthropocene is the age we live in, characterized by heavy imprints of human activities on nature by, for instance, industrial revolution based on fossil fuels, nuclear arms and nuclear energy, urbanization, consumption, and communication technologies. Sciences are not independent from the forces that created the Anthropocene. Actually, we must note that past science and the innovations facilitated by science, were among key drivers of the Anthropocene. Examples are energy systems based on fossil fuels, transport systems, construction, consumer goods, and agriculture and land use related innovations, causing greenhouse gas emissions, pollution, and land and water systems degradation.

At the same time, science and innovations are progressing and serving human betterment providing also opportunities to mitigate and manage the Anthropocene. The sciences, including the life sciences and medical sciences, have made child survival, longevity and coping with diseases possible and led to the growth of the human population, yet combined with expanded consumption and lifestyles with big environmental foot print. Science-based innovations of the past, often with time lags, are part of the root causes of the Anthropocene.

Current and future science is now challenged to mitigate and help to adapt humanity to the Anthropocene. It is not new, that science-based innovations are posing ethical challenges for scientists and society at large. This is nowadays particular so with Artificial Intelligence (AI) impacting on society and many aspects of the sciences and innovation processes. We are challenged to explore AI developments and applications, as well as other innovations, as accelerators in the making of the Anthropocene, but we shall also ask if artificial intelligence may help human intelligence in achieving a sustainable Anthropocene.

Furthermore, the emerging sciences in chemistry, physics, biology and life sciences, and medicine are already aided in new ways by AI. Quantum physics and computing may be another field that offers innovations to turn the Anthropocene onto sustainable pathways. The Pontifical Academy of Sciences has addressed related themes with its consultations, publications, and public statements before[2], and is committed

- [1] Resilience of People and Ecosystems under Climate Stress Workshop | 13-14 July 2022
- Science and Survival. A Focus on SARS-CoV-2 and Connections Between Large-Scale Risks for Life on This Planet and Opportunities of Science to Address Them Plenary Session | 7-9 October 2020
- Science and Sustainability. Impacts of Scientific Knowledge and Technology on Human Society and its Environment Plenary Session | 25-29 November 2016
- Climate Change, Health of the Planet and Future of Humanity Workshop | 15 November 2018
- Biological Extinction: How to Save the Natural World on Which We Depend Workshop | 27 February - 1 March 2017

- [2] Robotics, AI, and Humanity: Science, Ethics, and Policy. Conference Workshop 16-17 May 2019 and Publication https://www.pas.va/en/publications/scripta-varia/sv144_springer.html
- Big Data and Science: Relevance of Computational Sciences for Data Collection, Data Storage and Data Management in Basic and Applied Scientific Investigations. Proceedings of the Working Group 17-18 November 2015 https://www.pas.va/en/publications/scripta-varia/sv133pas.html
- Power and Limitations of Artificial Intelligence. Workshop 30 November - 1 December 2016. https://www.pas.va/en/events/2016/artificialintelligence.html

to address the protracted challenge for sciences as both, causes and cures of the adverse elements of the Anthropocene. Since the Plenary Conference in 2022, the Pontifical Academy of Sciences has held workshops addressing important aspects of this broad agenda.[3] For instance, the massive health and societal problems caused by the COVID pandemic and by the chronic disease of cancer, the climate crisis and resilience challenges, the health of oceans, stem cell science, neurotechnology, quantum physics and computing, the growing humanitarian and food crises. We identified specific science opportunities in each of these areas and issued related statements urging policy and societies to act. The Plenary Conference 2024 partly draws on the insights from these workshops and puts them into the broader context of science and science diplomacy opportunities.

We emphasize that basic sciences remain ever more important for understanding and addressing the complex Anthropocene processes. Curiosity-driven science has big payoffs that often come about in unpredictable ways, mostly in the longterm, but increasingly even in the short term.

The Pontifical Academy of Sciences continues to address issues of science skepticism in society and media. It is necessary to further consider at the Plenary 2024 the determinants of these trends, the role that religion may play in openness to science, and the opportunities of science education to make a difference. The 2024 Plenary Session includes discussions with leaders from various global academy and science policy networks. This shall continue our Academy's strong track record to identify scientific solutions and engage with political and societal actors, including faith-based communities, and the Church in particular, to implement innovative actions for overcoming the most serious problems facing humanity. This is especially important when crises, wars, and growing risks trouble people and planet, as is currently the case. Purposeful sciences must have peace as a goal, as peace is a precondition for sustainable development.

*We ask speakers to give **presentations of 15 minutes max**. For the presentations, PPTs are welcome. We request all speakers to **contribute a paper** of not more than 3500 words, latest by **August 30th 2024**. **Accepting to contribute a paper is a condition for the invitation.** The papers will be published in the PAS publications series "acta" following PAS editorial guidelines* https://www.pas.va/en/about/editorial_guidelines.html

[3] See details on PAS Web site on these workshops held in 2022-2024:

- Reconstructing the Future for People and Planet June 9-10, 2022)
- Resilience of People and Ecosystems under Climate Stress (July 13-14, 2022)
- Health of the seas and oceans. (8 June 2022)
- Strategies to Decrease Inequalities in Cancer Therapeutics, Care, Prevention. (February 23-24, 2023)
- Food crises: Science and policies to prevent and overcome food crises. May 9-10, 2023,
- Quantum Science and Technology (November 22-25, 2023)
- Neurotechnology: Ethical and societal implications of recent advances (December 13-14, 2023)
- Astrophysics: James Webb Space Telescope: from first light to new world views (February 27-29, 2024)
- Indigenous Peoples Knowledge and the Science (PAS and PASS, March 14-15, 2024)
- From Climate Crisis to Climate Resilience (PAS/PASS, May – 15-17, 2024)

Programme

DAY 1 | MONDAY 23 SEPTEMBER, 2024

09.00-10.30	**Audience with Pope Francis** (including welcoming new PAS Academicians)
10.30-11.00	**Coffee break at Casina Pio IV**
11.00-13.00	**Guided tours in Vatican** (options such as Library, or Museum, or St. Peters Dome)
13.00-14.30	**Lunch at Casina Pio IV**
17.00-19.00	**Ethics and AI - Challenges and Regulations in Europe and beyond** A Panel session **followed by a reception**. Organized by the French and German Embassies to the Holy See, in collaboration with the Pontifical Academy of Sciences, the Dicastery for Culture and Education, and with the support of the Delegation of the European Union to the Holy See., held at **Curia Generalizia della Compagnia di Gesù. Borgo S. Spirito, 4.** **Moderator: Archbishop Paul Desmond Tighe** **Speakers and Panelists**: • **Frances Hamilton Arnold** PAS Academician, Professor of Chemical Engineering, Bioengineering and Biochemistry at the California Institute of Technology (Caltech), External co-chair of President Biden's Council of Advisors on Science and Technology • **Demis Hassabis** PAS Academician, Chief executive officer and co-founder of DeepMind. UK Government AI Advisor • **Paul F. Nemitz** Principal Advisor for Digital Transformation in the Directorate-General for Justice and Consumers of the European Commission • **Eric Salobir** President, Human Technology Foundation, Paris, France • **Bernhard Schölkopf** Director at Max Planck Institute for Intelligent Systems, Tübingen and Honorary Professor TU Berlin

DAY 2 | TUESDAY 24 SEPTEMBER, 2024

09.00-09.20	**OPENING SESSION** **Chair: President Prof. Joachim von Braun Words of Welcome and Concept of the Plenary** **Cardinal Peter K.A. Turkson: Words of welcome**
09.20	***Session I* The Anthropocene – concept, measurement, and the role of the sciences as cause and cure**
09.20-09.40	*Science for the Anthropocene – an introduction* **Prof. Jürgen Renn** Max Planck Institute for Geoanthropology, Jena, Germany
09.40-10.00	*Anthropocene stratigraphy* **Prof. Francine M.G. McCarthy** Professor, Earth Sciences. Brock University, Canada, and Anthropocene Working Group, International Commission on Stratigraphy
10.00-10.20	*Religion, the sciences and the Anthropocene* **Cardinal Peter Turkson** PAS Chancellor
10.20-10.30	**Discussion**
10.30-11.00	**Coffee Break**
11.00	**Session II: Climate crisis, biodiversity loss, and human contexts – outlook and needed actions for a habitable earth** **Co-Chairs: Hans J. Schellnhuber and Veerabhadran Ramanathan**
11.00-11.20	*Historic actions to tackle the interacting triple crises of climate change, loss of biodiversity, and inequity* **Prof. Jane Lubchenco** (PAS) University Distinguished Professor Wayne and Gladys Valley Professor of Marine Biology Oregon State University
11.20-11.40	*Building a strong inclusive AI driven global commons for development impact at the nexus of climate, people, landscape health and food security* **Dr. Éliane Ubalijoro** Chief Executive Officer, CIFOR-ICRAF, Kenya
11.40-12.00	*Challenges in Climate Change Research and Bending the Curves towards a Sustainable Stewardship* **Prof. Örjan M. GUSTAFSSON** (PAS) Professor Stockholm University, Department of Environmental Science, Bolin Centre for Climate Research
12.00-12.20	*Air Quality, Health, and Climate in the Anthropocene* **Prof. Ulrich Pöschl** Director at the Max Planck Institute for Chemistry and professor at the Johannes Gutenberg University (JGU) in Mainz, Germany
12.20-12.40	*Challenges to habitability and multi-level responses* **Dr. Kira Vinke** Head of the Center for Climate and Foreign Policy at the German Council on Foreign Relations (DGAP)

12.40-13.00	**Discussion**
13.00-14.30	**Lunch**
14.30	**SESSION III: Quantum physics, and -computing – science perspectives, emerging applications and implications for AI** **Co-Chairs: Prof. Vanderlei Bagnato (PAS) and Prof. William D. Phillips (PAS)**
14.30-14.50	*The Fundamental Message of the Quantum* **Prof. Anton Zeilinger** University of Vienna, Institute for Quantum Optics and Quantum Information, Austria
14.50-15.10	*Quantum Simulation using Ultracold Atoms* **Prof. Immanuel Bloch** Scientific Director, Max Planck Institute of Quantum Optics, Germany
15.10-15.30	*Global Environmental Measurement and Monitoring (GEMM)* **Prof. Donna T. Strickland (PAS)** Professor at the University of Waterloo in Ontario, Canada, Chair of Optica's Presidential Advisory Committee
15.30-15.50	*Quantum Simulation and New Quantum Phases with Long-Range-Interacting Ultra-Cold Atoms* **Prof. Dr. Francesca Ferlaino** Professor of Physics, University of Innsbruck (Austria) Research Director of the Institute for Quantum Optics and Quantum Information (IQOQI), Austria
15.50-16.10	*Quantum systems open to the world* **Prof. Ana Asenjo-Garcia** Columbia University, USA
16.10-16.30	**Discussion**
16.30-17.00	**Coffee Break**
17.00	**SESSION IV: Artificial Intelligence for sciences, innovations and sustainability - opportunities and risks *Co-Chairs:* Wolf Singer**
17.00-17.20	*Using AI to accelerate scientific discovery* **Prof. Demis Hassabis** (PAS) Chief executive officer and co-founder of DeepMind. UK Government AI Advisor
17.20-17.40	*AI and the Forces Changing Science in the 21st Century* **Prof. Frances Hamilton Arnold** (PAS) Professor of Chemical Engineering, Bioengineering and Biochemistry at the California Institute of Technology (Caltech), External co-chair of President Joe Biden's Council of Advisors on Science and Technology
17.40-18.00	*Beyond the AI hype: Balancing Innovation and Social Responsibility* **Prof. Maria Dignum** Professor of Responsible Artificial Intelligence at Umeå University (Dept of Computing Science) and director of the AI Policy Lab. Member of United Nations High Level Advisory Body in AI
18.00-18.20	*Brain-machine interfaces and AI. Ethical and legal questions* **Prof. Reinhard Merkel** Professor in criminal law and philosophy of law, University of Hamburg

18.20-18.40	*Materials for the quantum age* **Prof. Cristiane Morais Smith** Chair Condensed-Matter Physics, Utrecht University, ITP
18.40-19.00	**Discussion**
19.00-21.00	**Dinner at Casina Pio IV**

DAY 3 |WEDNESDAY 25 SEPTEMBER, 2024

9:00	**SESSION V – Live sciences innovations, and new approaches** **Co-Chairs: Edward M. De Robertis and Frances Hamilton Arnold**
09.00-09.20	*The Future of Genomic Medicine* **Prof. Eric Lander (PAS)** Professor of biology at the Massachusetts Institute of Technology (MIT), and professor of systems biology at Harvard Medical School
09.20-09.40	*Interplay of oxygen, carbon dioxide and peroxide metabolism in mammalian cells* **Prof. Rafael Radi (PAS)** Professor Departamento de Bioquímica, Facultad de Medicina and Director of Centro de Investigaciones Biomédicas (CEINBIO), Universidad de la República, Montevideo, Uruguay
09.40-10.00	*Design of new metabolism for increasing carbon fixation* **Prof. James C. Liao** President of Academia Sinica, Taiwan, Professor and Chair of the Department of Chemical and Biomolecular Engineering at the University of California, Los Angeles
10.00-10.20	*Marine Science with AI for Sustainability and Wellbeing* **Prof. Takashi Gojobori** (PAS) Vice-Director of the National Institute of Genetics (NIG) in Mishima, Japan and Distinguished Professor at King Abdullah University of Science and Technology (KAUST), Saudi Arabia
10.20-10.30	**Discussion**
10.30-11.00	**Coffee Break**
11.00	**SESSION VI – Health and Medical Sciences - emerging science incl. AI to address pandemics and chronic diseases** **Co-Chairs: Prof. Chien-Jen Chen** (PAS) and **Prof. Edith Heard (PAS)**
11.00-11.20	*Development of drugs for Multidrug Resistance Bacteria: the role of artificial intelligence* **Prof. Tebello Nyokong (PAS)** Distinguished Professor of Chemistry and the Director of Institute for Nanotechnology Innovation at Rhodes University, South Africa
11.20-11.40	*Biological Clocks, Thermotolerance, and Fitness: Seeing Through the Eyes of a Fungus* **Prof. Castro Luis F. Larrondo** Full Professor Cellular and Molecular Biology, Universidad Católica de Chile, Chile

11.40-12.00	*Overcoming gerozymes and muscle aging with AI* **Prof. Helen Blau** (PAS) Donald E. and Delia B. Baxter Foundation Professor and Director of the Baxter Laboratory for Stem Cell Biology at Stanford University School of Medicine
12.00-12.30	**Discussion**
12.30-14.00	**Lunch**
14.00	**SESSION VII –Astronomy and changing world views** **Co-Chairs: Prof. Ewine van Dishoeck** and **Brother Guy Joseph Consolmagno, SJ**
14.00-14.15	*Transforming our Understanding of the Heart of our Galaxy* **Prof. Andrea Ghez** (PAS) Professor Physics and Astronomy and Lauren B. Leichtman & Arthur E. Levine chair in Astrophysics, at the University of California, Los Angeles
14.15-14.30	*Astrobiology and the Anthropocene: How Searching for Life Elsewhere Can Help Us Sustain Life on Earth* **Prof. David Grinspoon** NASA
14.30-14.45	*The Role of Technology in Shaping the Sustainability Agenda* **Prof. Maria Zuber** Professor MIT planetology & geophysics
14.45-15.00	*Vera C. Rubin's Legacy Survey of Space and Time: The Greatest Movie of All Time* **Prof. Zeljko Ivezic** Professor of Astronomy University of Washington, Director of the Vera C. Rubin Observatory Construction Project
15.00-15.15	*TITLE TBD* **Prof. Didier Patrick Queloz** (PAS) Director of the Center for the Origin and Prevalence of Life at ETH Zurich and Professor of Natural Philosophy at the University of Cambridge
15.15-15.30	*New Advances in Exoplanet Science with JWST* **Prof. Nikku Madhusudhan** Professor of Astrophysics and Exoplanetary Science, University of Cambridge, UK
15.30-16.00	**Discussion of the presentations**
16.00-16.30	**Coffee Break**
16.30	**SESSION VIII – Sciences and AI linking with traditional & indigenous knowledge for addressing Anthropocene issues** **Co-Chairs: Prof. Mohamed Hassan and Prof. Joachim von Braun**
16.30-16.50	*On human anthropology–looking back into human adaptation and evolution* **Prof. Zeresenay Alemseged** (PAS) Donald N. Pritzker Professor in the Department of Organismal Biology and Anatomy at the University of Chicago, USA
16.50-17.00	*Developing country problems, reducing the environmental impact of crops, equitable use of new technology as part of holistic innovation of agriculture and food production systems* **Prof. David Baulcombe** (PAS) Emeritus Regius Professor of Botany, Cambridge University

17.00-17.20	*Ancestral Wisdom and Artificial Intelligence: Pathways for a Sustainable Planet and Well-Being of Humanity* **Prof. Octaviana Trujillo** Chair and Professor Emerita in the Department of Applied Indigenous Studies at Northern Arizona University
17.20-17.40	*Coupling technology with traditional knowledge for health and wellness* **Dr. Subarna Roy** Director, ICMR National Institute of Traditional Medicine, Belagavi, India
17.40-18.10	**Discussion**
18.10	**IX Science-Policy perspectives – *a high level panel session with brief introductory statements by panellists related to aspects of the themes of Anthropocene and AI (8 minutes each, interactive in panel and with audience)*** **Chair: Prof. Joachim von Braun**
	Prof. Quarraisha Abdool Karim President of The World Academy of Sciences for the advancement of science in developing countries (UNESCO-TWAS), South Africa
	Prof. Carlos Gilberto Carlotti Jr Rector of Universidade de São Paulo, Brazil and Professor Faculty of Medicine, Neurosurgery
	Georg Schütte Secretary General of Volkswagen Foundation, Germany
	Francesca Cesari Chief Editor with Journal Nature (Biological, Clinical and Social Sciences), United Kingdom
	Prof. Willie E. May Vice President for Research and Economic Development & Professor of Chemistry. Morgan State University and President, American Association for the Advancement of Science (AAAS)
	Prof. Peter Gluckman President, International Science Council (ISC), New Zealand
19.00-19.30	**Open discussion of panellists with participants**
19.30	**SESSION X – Commemorations and Self-Introductions of PAS Academicians** **Co-Chairs: President Joachim von Braun and Chancellor Cardinal Peter Turkson**
19.30-19.45	**Commemorations of Academicians**
19.45-20.00	**Self-introductions of new Academicians**
20:00-21.30	**Dinner at Casina Pio IV**

List of Conference Participants

Prof. Joachim von Braun
President
The Pontifical Academy of Sciences, Bonn University, Germany

Cardinal Peter K.A. Turkson
Chancellor
The Pontifical Academy of Sciences

Prof. Zeresenay Alemseged
PAS Academician, Professor at University of Chicago
University of Chicago
USA

Prof. Frances Arnold
PAS Academician, California Institute of Technology
USA

Prof. Ana Asenjo-Garcia
Columbia University

Prof. Vanderlei S. Bagnato
PAS Academician, Professor
University of Sao Paulo and Texas A&M University
Brazil /USA

Sir David Baulcome
PAS Academician, Regius Professor of Botany Emeritus
Cambridge University
UK

Prof. Helen M. Blau
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Donald E. and Delia B. Baxter Foundation Professor for Stem Cell Biology
USA

Prof. Immanuel Bloch
Scientific Director
Max Planck Institute of Quantum Optics
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Prof. Carlos Gilberto Carlotti Junior
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Dr Francesca Cesari
Chief Editor, Nature, Biological, Clinical and Social Sciences, United Kingdom

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Prof. Virginia Dignum
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Prof. Francesca Ferlaino
Professor and Institute Scientific Director
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Prof. Andrea Ghez
PAS Academician, Professor of Physics & Astronomy; Lauren B. Leitchman and Arthur E. Levine Chair in Astrophysics
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Sir Peter Gluckman
President
International Science Council
New Zealand

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Sir Demis Hassabis
PAS Academician, Co-Founder & CEO
Google DeepMind
UK

Prof. Mohamed Hassan
PAS Academician and PAS Council member
Sudan

Prof. Edith Heard
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EMBL
Germany

Prof. Zeljko Ivezic
University of Washington
USA

Prof. Mittelstraß Jürgen
PAS Academician, philosophy,
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Prof Quarraisha Abdool Karim
President: The World Academy of Sciences
The World Academy of Sciences (TWAS)
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Prof. Jane A. Lubchenko
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White House Office of Science and Technology Policy, and Professor at Oregon State University
USA

Prof. Nikku Madhusudhan
University of Cambridge
UK

Prof. Mauro Mantovani
Prefect
Vatican Apostolic Library
Vatican City

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President, American Association for the Advancement of Science
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Brock University
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Professor in criminal law and philosophy of law,
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Full Professor
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Dr Subarna Roy
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ICMR-National Institute of Traditional Medicine, Belagavi, India
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Prof. Carlo Rubbia
PAS Academician, CERN

Prof. Hans Joachim Schellnhuber
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Prof. Wolf Singer
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Professor Emeritus
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Vice President for Research
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Accompanying persons

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accompanying Prof. Vanderlei Bagnato
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Luciano Bagnato
Diretor Comercial e Marketing SR
MMO - Tecnologia para a saúde
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accompanying Dr. Donna Strickland
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Jennifer Goldsmith-Grinspoon
FEMA
Accompanying Prof. David Grinspoon
NASA, USA

Mrs. Maria Gustafsson
accompanying Prof. Gustafsson
Sweden

Ms. Kathleen A. Hughes
Accompanying Dr. Francine McCarthy
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Michael MacKinnon
Accompanying Dr. Francine McCarthy
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Mr. Jerry Kupfer
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Associate Professor of Inorganic-Analytical
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Ms. Patt Morrison
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Teresa Niccoli
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Mrs. Mayra Onuchic
accompanying Prof. Onuchic
Rice University
USA

Ms Tina Queloz
accompanying Prof. Didier Queloz
Switzerland

Ms. Gini Reticker
Accompanying Dr. Francine McCarthy
United States

Dr. Delia Salmieri Rubbia
CERN, accompanying Prof. Rubbia
Italy

Dr. Nicola Urbani
Spouse to Eliane Ubalijoro (Speaker)
Kenya

Dr. Barbara von Braun
accompanying Prof. Joachim von Braun
Germany

Prof. Tim de Zeeuw
accompanying Prof. Ewine van Dishoeck
The Netherlands

General information

Dress code is business attire.

Invites are strictly personal. But accompanying persons are invited to the events on Sept. 23rd including the Papal Audience, and to the conference if meeting room space allows and to share the meals.

Please remember to bring a valid ID.

In case of any problems, please call the Academy on +39 0669883195 or +39 0669881441.

On travel days, the mobile phone number +393420026216 will be available.

Please refer to www.pas.va for further information on the Academy, the Academicians, and current and past events.

WI-FI

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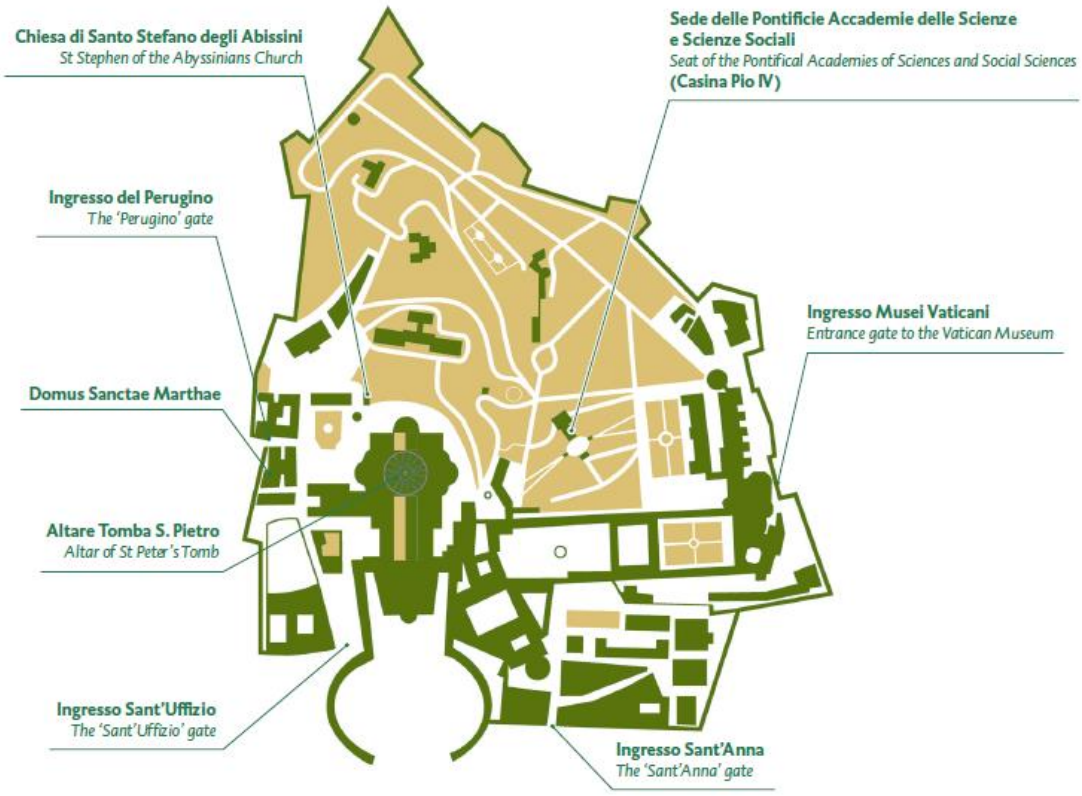
Password: will be available in the Casina PIO IV



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