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Title: World's physicists to convene in Johannesburg, South Africa, in October 2027

IUPAP General Assembly & International Conference on Physics 2027
Physics for Regenerative Development: Equitable Wellbeing on a Healthy, Lively Planet

Date: 17–23 October 2027

Venue: Indaba Hotel and Conference Centre, Johannesburg, South Africa

Advancing Physics for Regenerative Development, Sustainability, and the UN Sustainable Development Goals

A Southern African coalition has won two bids to host global physics meetings in 2027. The International Union of Pure and Applied Physics (IUPAP) will be holding the General Assembly of its members in Johannesburg, in parallel with the International Conference on Physics (ICP): “Physics for regenerative development: equitable wellbeing on a healthy, lively planet”.

“The Southern Africa physics community is very proud and excited to host these two eminent meetings in Johannesburg”, said Prof Rudolph Erasmus, Immediate Past President of the South African Institute of Physics. Dr Brian Masara, Executive Officer of the South African Institute of Physics, says “This is a strategic opportunity to position physics as a catalyst for Africa’s development. By hosting the world’s physicists in Southern Africa, we aim to strengthen Africa’s voice in global science, foster physics-underpinned multi-disciplinary partnerships, and apply physics — together with emerging fields like artificial intelligence — to challenges ranging from clean energy to climate resilience, advancing sustainable development across the continent. It is the Physics of Today that shapes the Technology of Tomorrow.”

During his Keynote and Welcoming Address at the SAIP conference recently held at the University of the Witwatersrand, the Minister of the Department of Science, Technology and Innovation, the Honourable Prof BE Nzimande, expressed his delight at the successful bids to host the IUPAP GA and ICP in October 2027 in Johannesburg and expressed support for these events.

The IUPAP General Assembly

The international union began life in 1922, when electricity and radio were in common use, and a revolution in physics had produced quantum mechanics and relativity (which have led to cell phones, global positioning services, and hundreds of medical diagnostic and treatment devices). There was a clear need for world physicists to meet and share the excitement of discovery. A hundred and three years later, IUPAP has about 60 physical society and corporate members across the globe, who engage in the worldwide development of physics, foster international cooperation in physics, and help in the application of physics toward solving problems of concern to humanity. Every year, their delegations meet virtually to agree on resolutions in international cooperation and worldwide development of physics; but only once in three years do they hold a meeting with an in-person presence. One of these special years is 2027.

Representatives of Southern African physics communities are developing the constitution for a regional physical society, convened by Prof Azwinndini Muronga of Nelson Mandela University. The founding

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members responded speedily to the call for a General Assembly host and won the bid against stiff international competition.

The International Conference on Physics

One of the winning components was the proposal to hold the International Conference on Physics in parallel, choosing physics for climate change action and sustainable development as its theme; this highlights IUPAP's decision to form a working group to uncover the roles of physics in this context. Regeneration is an important theme, and addresses the need not only to mitigate the emission of greenhouse gases and to adapt to changing conditions, but to take action to rebuild conditions for equitable human well-being and planetary health. "Physics has always advanced hand-in-hand with society's most urgent needs — from energy and communication to health and security. Hosting the IUPAP General Assembly and the International Conference on Physics in Johannesburg in 2027 is not only a recognition of Southern Africa's growing role in global science, but also a call to harness physics for regenerative development. This is an opportunity to place Africa at the forefront of shaping solutions for equitable well-being on a healthy, thriving planet", says Prof Nithaya Chetty, former Vice President of IUPAP and chair of the working group.

Two meetings together

The General Assembly is specifically by invitation to delegations from IUPAP's territorial members and associate members, since voting on resolutions takes place. Prof Eric Maluta, President of the South African Institute of Physics, said "The conference will give opportunities for African Nations to understand that physics is not only done in laboratories, but it has relevance to everyday activities. The SAIP Physics in My Village flagship project focuses on assisting communities to understand how physics supports solving problems and shaping the future of technologies relevant to each community". Igle Gledhill, Vice President of IUPAP, says "There are very few physical society members of IUPAP in Africa, and the conference gives us an advantage in hosting as many African participants as we can".

Southern African hosts

Any physicist who has followed the unfolding of the 2024 devastating drought in SADC, the 2021 KwaZulu-Natal and 2025 Eastern Cape floods, and the desperate results of air pollution can see how their discipline has a role – in better El Niño forecasting, early warning of disaster, and in climate science and clean energy provision. There are surprising roles in other ways too: data on Antarctic conditions is vital for earth system models. It is theoretical physics that has formed our concept of how steady climate change and rapid variability in weather are related. Think, also, of the contributions medical and health physics can make in the changing disease scenarios and the provision of clean water.

The International Conference on Physics is in the earliest stages of organisation and further information will be released through the office of the South African Institute of Physics as planning proceeds. The events will take place in the week of 17-23 October 2027, in Johannesburg, South Africa, with parallel meetings of the regional physical society.

Ends

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