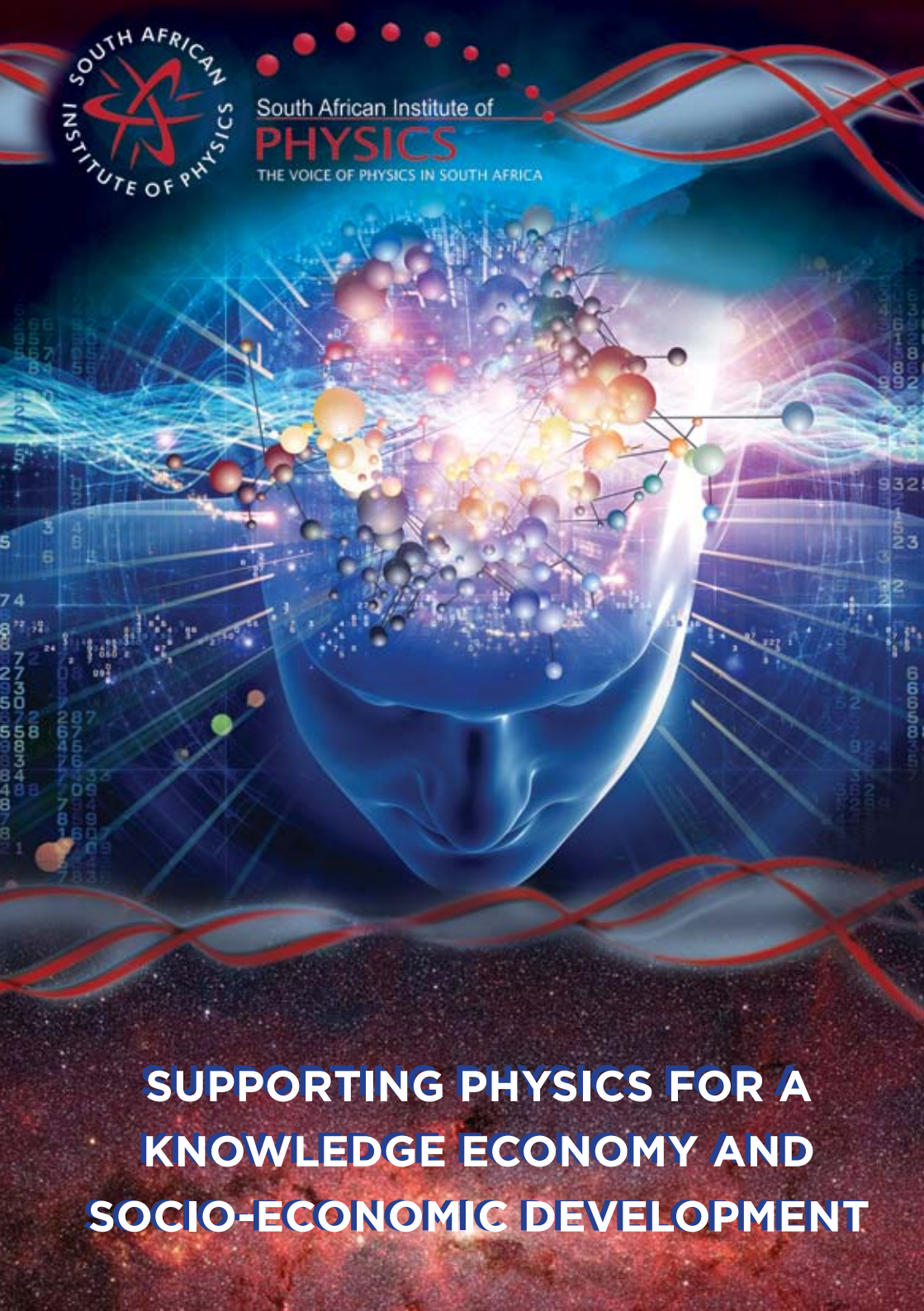




South African Institute of
PHYSICS

THE VOICE OF PHYSICS IN SOUTH AFRICA



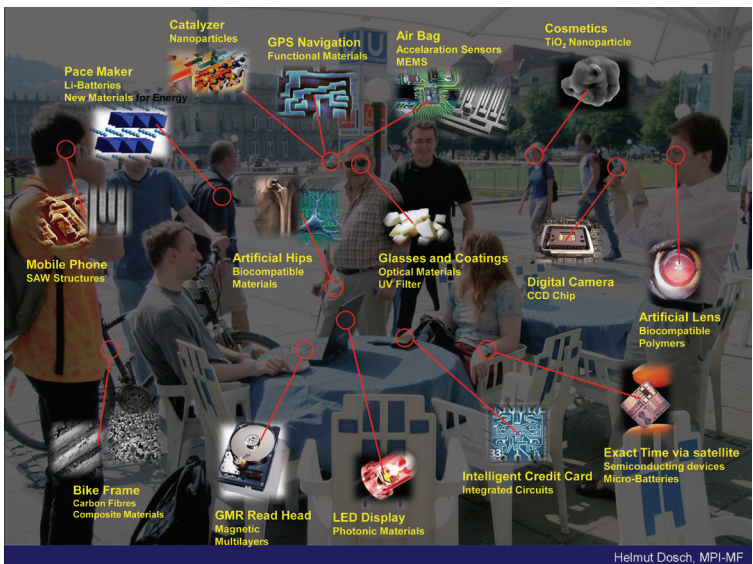
**SUPPORTING PHYSICS FOR A
KNOWLEDGE ECONOMY AND
SOCIO-ECONOMIC DEVELOPMENT**

On a typical day somewhere in the world....



Helmut Dosch, MPI-MF

Physics Improves our Quality of Life



Helmut Dosch, MPI-MF

“YES TO PHYSICS!”

**Support Physics for Socio-Economic
Development in South Africa**

1. WHO IS SAIP?

The South African Institute of Physics (SAIP) is a non-profit, voluntary and professional physics society that was established in 1955. It has a membership of over 500 made up of professionals, academics and students.

Our Mission - To be the Voice of Physics in South Africa

Our Main Objectives

1. To promote the study and research in physics and related subjects and to encourage the applications thereof
2. To further the exchange of knowledge among physicists by means of conferences and publications
3. To uphold the status of and ensure a high standard of professional conduct among physicists and
4. To promote physics for socio-economic development in South Africa
5. To make a difference by offering a wide range of services and projects addressing various community and developmental needs in the physics community and related stakeholders.

1.1 How SAIP is Making a Difference - Our Value Proposition

We promote skills and human capital development

- At school through the outreach and public understanding of physics and mobile physics lab initiatives
- At under-graduate through university level outreach activities, disseminating information on bursaries, careers etc, we also give free membership of SAIP to 3rd year physics students
- At post-graduate through post graduate study opportunities, post-doc opportunities, conferences and workshops, scholarships and bursaries, student prizes, career information,



We promote the quality of physics education

- At school through our physical science teachers development project
- At University through our initiatives such as Review of Physics Training in South Africa, The Undergraduate Benchmark, Biophysics Initiative and Shaping the Future of Physics in South Africa among others.

We support women and girls in physics through promoting women and girls to study physics and take up careers in physics. We also help in issues such as creating a conducive environment for girls to study physics at school and university. We also support creating the right environment for women at work.

We promote industrialization, innovation & entrepreneurship through Entrepreneurship for physicists and the Physics in Industry day, research conferences and capacity building workshops.

We support Government Strategy through various activities that support human capital development, knowledge generation, development of knowledge-based economy, innovation support among others. SAIP scans the physics environment continuously and makes appropriate recommendations for policy formulation and interventions by government.

**4th International Conference for Women in Physics
South Africa, Stellenbosch 4 - 9 April 2011**



2. WHY WE NEED YOUR SUPPORT?

It is recognized worldwide that physics is a basic science, vitally important to the development of mankind and to our understanding of the world - and universe - in which we live. In particular, physics often acts as a lead science - not only are the physics developments of today the technologies of tomorrow, but, inter-alia, it also plays the role of the canary in the mine. Thus, if Physics gets seriously ill, it is a warning that science and technology as a whole, and hence the growth of a knowledge-based economy, are in grave danger.

SAIP's role is to ensure that Physics in South Africa is healthy and of an international standard. Since SAIP is a voluntary body it can only fulfil the role through financial support from stakeholders.

At present the Department of Science at Technology (DST) has supported the SAIP to the tune of R6 million since 2007. The SAIP is appealing to other stakeholders to partner it, exploit physics for improving the quality of life and the development of a knowledge-based economy for South Africa.



LEFT:
PHYSICS
EMASONDOSONDO
PROJECT -
MOHALADITWE
SECONDARY SCHOOL
OUTREACH



3. HOW PHYSICS IMPROVES OUR QUALITY OF LIFE

3.1 “YES TO PHYSICS!”

- Do you use the internet, cell phones, GPRs or a computer?
- Do you relax by playing video games, watching a movie, listening to radio or play a CD or DVD?
- Do you check weather forecast before you travel or choose clothing?
- Have you visited a doctor for any form of imaging, whether sonar for your unborn baby, MRIs, CAT scans or x-rays to find broken bones or cancerous tumor?
- Do you know someone who owes their survival to radiation therapy?

IF YOUR ANSWER IS YES TO ANY OF THE ABOVE THEN YOU HAVE SEEN PHYSICS IN ACTION.

YOU JUST ANSWERED “YES TO PHYSICS!”

3.2 Notable Physics Contributions to Different Socio-Economic Sectors

Sector	Physics Contribution
Electronics	Did you know that electronics was made possible by the discovery of the electron and invention of the transistor by physicists? Transistors are the building blocks of electronics integrated circuits (ICs) and computers.
IT and Telecommunications	Did you know that the internet and the computer were invented by physicists? Fibre optics, internet technology, GPS technology, Satellite Communication
Energy Provision	Did you know that Physics is at the forefront of energy provision? Renewable energy technologies, solar, thermal, wind, bio-gas
Manufacturing & Trade	Did you know that technical barriers to International Trade e.g. conformity assessments, quality and accreditation standards are based of Physics of Measurements? Test & measurement technologies, Instrumentation and control, calibration standards, metrology, Non-Destructive Testing, Industrial Ventilation

Sector

Physics Contribution

Research & Development

Did you know that research technologies developed in physics are at the cutting edge of frontiers of scientific research by all fields? e.g. Synchrotrons Techniques, Scanning Electron Microscopes, Nanotechnology, Computational Physics & Modelling, The world's largest science research instruments are physics instruments? e.g. CERN, LHC, SKA, LIGO Astrophysics helps research into understanding the outer space and origins of the earth
Did you know in South Africa most of the National Research Facilities are Physics Based? NiTHEP, SAAO, HaartRAO, SANSA, iThemba LABS, SKA,

Nuclear Industry

Did you know that the nuclear industry was made possible by discovery of the nucleus by physicists? Radiation protection, nuclear waste management, nuclear energy technologies, nuclear radiation for medical applications e.g. cancer treatment, diagnostics Neutron imaging

Health & Medicine

Did you know that all High-Tech Medical Equipment is developed by physicists? Human Body scanning and Imaging technologies and technologies SONAR, MRI, CAT Scan, X-rays, Chemotherapy, Nanotechnology based sun screen creams, artificial limbs, spectacles and eye lens

Education & Skills Development

Did you know physicists are employed in a wide range of industries from academia, research, manufacturing, policy making, finance and administration? Physics training helps develop various transferable and sort-after skills such as

- a practical approach to problem solving often using mathematical techniques
- research & analytical skills and ability to communicate complex ideas

Automotive & Transport Industry

Sensors, safety, catalytic converters, battery technologies, accident reconstruction and analysis, aerodynamics



Sector	Physics Contribution
Materials Science	Mechanical and Civil engineering are both rooted in mechanics a branch of physics
Mining Industry	Mining Seismology, Mineral exploration physics, gas sensors for mining, mineral sorting technologies, Mining Ventilation
Environment, Defence & Security	Astro-physics and Space-physics, Seismology, Water treatment technologies
Finance and Commerce	IT infrastructure, Credit Card Circuits, Financial markets modelling

4. HOW TO SUPPORT SAIP

The SAIP is involved in various activities and projects to support the Physics discipline and make sure its in good health in South Africa, for example SAIP has several activities supporting physics education, human capital development for science and technology, transformation and gender equality, technological innovation and entrepreneurship in physics.

Partners can support SAIP in any of our activities listed below:

4.1 Projects & Activities for Sponsorship

- SAIP Secretariat
- Women in Physics in South Africa - WiPISA
- Schools Outreach and Mobile Physics Lab
- Physical Science Teacher Development
- Conferences & Workshops
- Entrepreneurship for Physicists
- South African Biophysics Initiative
- Review of Physics Training in South Africa

4.2 Sponsorships to SAIP

SAIP can be supported through philanthropic gifts in the form of grants, donations, bequests, endowments, student awards, student bursaries and scholarships and assets donation

SAIP can also be supported through project specific grants, or joint projects between SAIP, Private Sector and/or Government.

5. WHAT YOU GET FOR SUPPORTING US

5.1 Benefits of Supporting SAIP

- BEE scores previously disadvantaged students support
- Achieve own aims e.g. supporting maths, science and technology in SA
- Help create a Science and Technology skills base

5.2 Acknowledgement by SAIP

- Fully Acknowledged on SAIP Sponsors/ Partners list
- We post your logos on SAIP website
- Receive the quarterly Physics Comment Magazine (PC Magazine)
- Free Adverts in the PC Magazine & SAIP website
- Free Exhibition Stands at SAIP Annual Conference
- Full Colour A4 Adverts in the SAIP Annual Conference Book of Abstracts
- Access to our emailing list with more than 1000 physics graduates in SA
- Two free tickets to the SAIP annual Banquet

Our Banking details

Account Name	South African Institute of Physics
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Account number	202815382
Branch	Lynwood Ridge
Branch Code	01244515
SWIFT CODE	SBZAZAJJ





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