



## **Nuclear Energy Safety Symposium**

Thursday, 13 October 2011

09:15 – 16:30

Innovation Centre, Mark Shuttleworth Street,  
Innovation Hub, Pretoria



The Academy of Science of South Africa (ASSAf) was inaugurated in May 1996 in the presence of President Nelson Mandela, the Patron of the launch of the Academy. It was formed in response to the need for an Academy of Science consonant with the dawn of democracy in South Africa: activist in its mission of using science for the benefit of society, with a mandate encompassing all fields of scientific enquiry in a seamless way, and including in its ranks the full diversity of South Africa's distinguished scientists. The Parliament of South Africa passed the Academy of Science of South Africa Act, Act 67 of 2001, which came into operation on 15 May 2002. This has made ASSAf the official Academy of Science of South Africa, recognised by government and representing South Africa in the international community of science academies.

## Abbreviated Biographies of Speakers



**Professor Rob Adam** is Chief Executive Officer of the South African Nuclear Energy Corporation (NECSA), South Africa's statutory nuclear technology organisation. He has held this position since 2006. He holds the title of Extraordinary Professor of Physics at both the University of Pretoria and the University of South Africa. Adam also serves on the Council of the Academy of Science of South Africa, on the Board of Pebble-bed Modular Reactor (Pty) Ltd and chairs the Steering Committee for South Africa's bid to host the Square Kilometre Array Radio Telescope. Before joining NECSA, Adam was Director-General of the Department of Science and Technology, a position he held for seven years. In this capacity he was responsible for driving all major national science and technology initiatives of Government. Adam has held various academic positions in Europe and South Africa, and has published 25 refereed articles in theoretical physics.



**Professor Roger Cashmore** is the Principal of Brasenose College at Oxford University. He is a former Director of Research and Deputy Director-General of the European Organisation for Nuclear Research (CERN) where he was responsible for the experimental programme at the Large Hadron Collider (LHC). Currently his research interests focus on the LHC, using the Atlas Detector in which Oxford University is involved, and the search for dark matter in underground experiments. He is Chairman of the Ministry of Defence's Nuclear Research Advisory Council and member of the Royal Society's Advisory Committee on the Scientific Aspects of International Security (SAIS).



**Professor Robert Guillaumont** is an Emeritus Professor of Chemistry at the Université Paris-Sud in Orsay. His scientific background is around radiochemistry and actinides chemistry and his expertise is on the chemistry of nuclear fuel cycle (from uranium mining to waste management through reprocessing). He got his PhD from the Radium Institute (Paris). He has been appointed as Member or as the Head for many French and International Committees dealing with nuclear energy, radwaste (radioactive waste) management (research and safety) and the use of radionuclides. Today he belongs to the French Nuclear Safety Committee in charge of radwastes and he is a member of the French Academy of Sciences.



**Ms Anne Harrington** was sworn in as Deputy Administrator for Defense Nuclear Nonproliferation for the National Nuclear Security Administration in October 2010. Previously, she was the Director of the US National Academy of Sciences Committee on International Security and Arms Control (CISAC), a position she held from March 2005 to October 2010. While at CISAC, she managed several key studies on a variety of nonproliferation, threat reduction and other nuclear security issues, including: *Global Security Engagement: A New Model for Cooperative Threat Reduction* (2009); *Future of the Nuclear Security Environment in 2015* (2009); *Internationalisation of the Nuclear Fuel Cycle: Goals, Strategies, and Challenges* (2008, joint report with Russian Academy of Sciences). Harrington served for 15 years in the US Department of State, where she was Acting Director and Deputy Director of the Office of Proliferation Threat Reduction and a senior US government expert on nonproliferation and cooperative threat reduction. She has dedicated much of her government career to developing policy and implementing programmes aimed at preventing the proliferation of weapons of mass destruction (WMD) and missile expertise in Russia and Eurasia, and also launched similar efforts Iraq and Libya. Harrington has been author or co-author on a number of papers on the role of the scientific community in preventing proliferation of WMD expertise and approaches to countering biological threats.





**Advocate Boyce Mkhize** is currently the Chief Executive Officer of the National Nuclear Regulator (NNR). He is a Lawyer by training possessing BJuris and LLB degrees from the University of Zululand and an admitted Advocate of the High Court of South Africa. Prior to him joining the NNR in 2010, he was the Registrar and Chief Executive Officer of the Health Professions Council of South Africa (HPCSA). While CEO of the HPCSA, he also served as the Secretary-General of the Association for Medical Councils of Africa. He also served as Chief Legal Advisor and Company Secretary for the then Atomic Energy Corporation, now known as the South African Nuclear Energy Corporation (NECSA). Prior to this he had served in government departments in various capacities which included being Chief of Staff in the office of the Minister of Public Service and Administration and Deputy Director for Affirmative Action Policy and Transformation. He also serves in Boards and Councils of a few public institutions and private companies in South Africa.



**Dr Hideki Nariai** is the former President of the Japan Nuclear Energy Safety Organisation (2003 – 2009), following a brief period as the President of the Atomic Energy Society of Japan. He graduated from the University of Tokyo, where he obtained a doctorate in engineering. He then joined the Ship Research Institute as a Research Engineer for the Nuclear Ship Division from 1967 - 1980. Nariai spent a year at the Massachusetts Institute of Technology as a visiting Engineer at the Department of Mechanical Engineering. He was then appointed as Associate Professor, Professor and thereafter Emeritus Professor at the University of Tsukuba, Japan. Nariai's key interest areas are nuclear thermal hydraulics and nuclear safety. He is a member of the Science Council of Japan.



**Professor Piet Stoker** joined the North-West University in 2005 as Head of the Centre for Research and Continued Engineering Development (Vaal). He has since built up a research group comprising 15 PhD and 4 Master students working in the area of: "nuclear policy and business studies". Prior to this Stoker worked in the Mining, Utilities and Arms Development industries as consultant. He was CEO of MEGKON (Pty) Ltd, a technology development company, for a period of 20 years. During this time the company grew to an international enterprise, and won the Technology Top 100 category award five times. He served on the South African Council of Professional Engineers (the predecessor of Engineering Council of South Africa) from 1983 to 1988 and he has been a registered Professional Engineer since 1978.



**Dr Alex Tsela** is the owner of the Scientific And Technical Services Institute (SATSI). He has held several strategic roles in the past. Amongst others, Tsela was the Chief Executive Officer of the Pebble-bed Modular Reactor Company, the General Manager of the Nuclear Compliance Assurance, and on the Board of Directors in the Nuclear Industry Association of South Africa (NIASA). He was interim CEO, after being the Head of Regulatory Strategy and a Radiation Protection Specialist, at the National Nuclear Regulator of South Africa. His focus areas were on leading research and development, safety standards and regulations, international liaison. Prior to this he was a Lecturer in physics at the University of the Witwatersrand and University of Swaziland. He holds a PhD in nuclear physics from the University of the Witwatersrand, MSc nuclear physics from the University of Sussex and an MBA from the University of Pretoria.



**Mr Phumzile Tshelane** is the Vice-President of the Nuclear Industry Association of South Africa (NIASA). He is currently employed full time by Eskom, where he participates in the development of execution plans for the Eskom nuclear build programme. He is also the non-executive Director at the South African Nuclear Energy Corporation (Necsa). In the past 20 years, he has served in several national and international organisations and he has proven excellence as a technology strategist.



08:45 – 09:15	<b>Registration</b>	
<b>Chair: Prof Robin Crewe President, ASSAf</b>		
Time	Topic	Speaker
09:15 – 09:20	Welcome and purpose	Prof Robin Crewe <i>President, ASSAf</i>
09:20 – 09:50	<b>Keynote address</b>	Honourable Minister of Energy, Ms Dipuo Peters
09:50 – 10:20	Disarmament and global threat reduction in the context of a growing nuclear power industry	Ms Anne Harrington <i>US Department of Energy Office of Science</i>
10:20 – 10:35	Discussion	
10:35 – 10:55	Nuclear energy – understanding the risks	Mr Phumzile Tshelane <i>Nuclear Industry Association of South Africa (NIASA)</i>
10:55 – 11:10	Discussion	
11:10 – 11:30	<b>Tea</b>	
<b>Chair: Prof Ahmed Bawa ASSAf</b>		
11:30 – 12:00	Lessons Learned – Fukushima, Japan	Dr Hideki Nariai <i>Science Council of Japan</i>
12:00 – 12:15	Discussion	
12:15 – 12:45	Challenges and opportunities for enhancing the safety standards in the nuclear industry	Prof Robert Guillaumont <i>Académie des Sciences, Institut de France</i>
12:45 – 13:00	Discussion	
13:00 – 13:20	Challenges and opportunities for enhancing the development of safer nuclear energy technologies	Prof Rob Adam <i>NECSA</i>
13:20 – 13:30	Discussion	
13:30 – 14:15	<b>Lunch</b>	
<b>Chair: Prof Rob Adam</b>		
14:15 – 14:35	Nuclear Energy Safety: A Systems Approach	Prof Piet Stoker <i>North-West University</i>
14:35 – 14:45	Discussion	
14:45 – 15:05	The role of regulatory authorities in future nuclear energy safety development	Advocate Boyce Mkhize <i>National Nuclear Regulator</i>
15:05 – 15:15	Discussion	
15:15 – 15:35	Public engagement and perception of nuclear energy and associated risks	Dr Alex Tsela <i>Scientific &amp; Technical Services Institute</i>
15:35 – 15:45	Discussion	
15:45 – 16:15	Presentation on the Royal Society Report: 'Responsible stewardship of a nuclear renaissance: best practice for non-proliferation'	Prof Roger Cashmore (via videoconference) <i>UK Royal Society</i>
16:15 – 16:30	Discussion	
16:15 – 16:25	Summary and way forward	Prof Rob Adam
16:25 – 16:30	Concluding remarks and vote of thanks	Prof Roseanne Diab