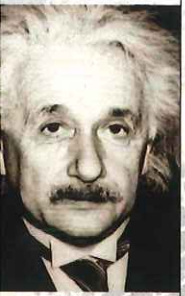


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DO NOT WORRY  
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I CAN ASSURE  
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STILL GREATER.

Albert Einstein

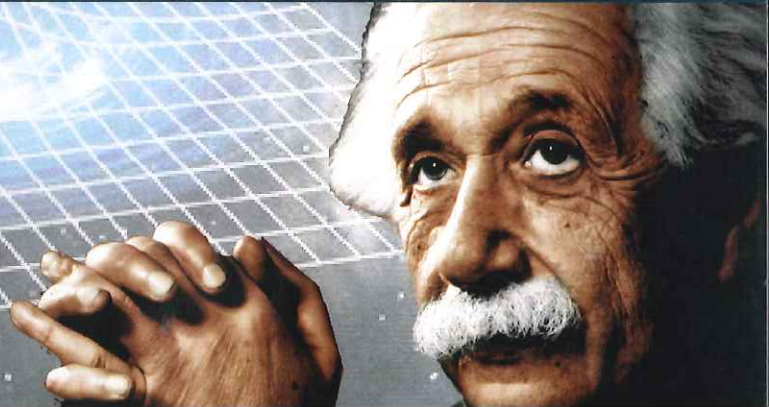


ACADEMY OF SCIENCES OF ALBANIA

INTERNATIONAL CONFERENCE  
**ALBERT EINSTEIN  
AND GENERAL THEORY  
OF RELATIVITY**

(on the occasion of the 100 anniversary  
of Albert Einstein's General Theory of Relativity)

BOOK OF ABSTRACTS





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Tirana, 2015



**THE HONORARY COMMITTEE OF CONFERENCE**

Acad. Prof. Dr Muzafer Korkuti – *President of Academy of Sciences of Albania*  
 Acad. Prof. Dr Gudar Beqiraj – *Vice-President of Academy of Sciences of Albania*  
 Prof. Dr Dhori Kule – *Rector of the University of Tirana*  
 Prof. Dr Mynyr Koni – *Dean of Faculty of Natural Sciences, University of Tirana*

**THE ORGANIZING COMMITTEE OF CONFERENCE**

Acad. Prof. Dr Salvatore Bushati – *Head of Section of Natural & Technical Sciences, Academy of Sciences of Albania*  
 Acad. Prof. Dr Rexhep Mejdani - *Faculty of Natural Sciences, University of Tirana*  
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 Enkelejda Misha - *Publication support, Academy of Sciences of Albania*

**CONFERENCE PROGRAM**

- 08:30 - 09:00 Registration of participants
- 09:00 - 09:30 Opening ceremony: Welcome greetings from representatives  
 Acad. Prof. Dr Muzafer Korkuti, President Academy of Sciences of Albania  
 Prof. Dr Dhori Kule, Rector of the University of Tirana  
 Boaz Rodkin, Israel Ambassador
- 09:30 - 10:30 **FIRST SESSION:**  
 General overview on Albert Einstein's General Theory of Relativity
- 09:30 - 09:50 Prof. Dr Halil Sykja - About the essence of Albert Einstein's General Theory of Relativity.
- 09:50 - 10:10 Acad. Prof. Dr Rexhep Mejdani - Philosophical impact of General Theory of Relativity.
- 10:10 - 10:30 Prof. Dr. Dritan Spahiu -Historical background of General Theory of Relativity.
- 10:30 - 11:00 *Coffee Break*
- 11:00 - 12:30 **SECOND SESSION:**  
 Specific topics of Albert Einstein's General Theory of Relativity
- 11:00 - 11:20 Dr. Lorenzo Amati (Italian Institute for Astrophysics) - Challenging General Relativity Cosmology with the most relativistic astrophysical sources
- 11:20 - 11:40 Prof. Dr Mimoza Hafizi (Tirana University)- Gravitational lensing
- 11:40 - 12:00 Dr Peter McGrath- IAP/IAMP Coordinator - Science and Diplomacy: The legacy of Albert Einstein
- 12:00 - 12:30 *Documentary film about General Theory of Relativity*



## SCIENCE AND DIPLOMACY: THE LEGACY OF ALBERT EINSTEIN

Dr. Peter McGrath, IAP Coordinator

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Nowadays Einstein's popular image is one of the absent-minded genius. Someone who lived for his science – a driving force of creativity and novel ideas that opened up new areas of study for many who have followed him. Indeed, the ramifications of his two theories of relativity, published 100 years ago this year, are still being investigated by hundreds of scientists around the globe.

But Einstein was more than just a pure scientist – he also understood the implications of his research, as well as the reasons behind and effects of his isolation from his roots in central Europe.

"We cannot solve our problems with the same thinking we used when we created them," said Einstein. He may have been referring to his concept of the curvature of space-time – a new way of thinking that solved some of the problems faced by physicists trying to reconcile the laws of classical mechanics with those of electromagnetism. As we all know, his new way of looking at things became his special theory of relativity.

But equally, Einstein could have been talking about political or development issues – about the challenges of addressing the 2015-2030 Sustainable Development Goals (SDGs) for example, like ending poverty, ending hunger, or achieving healthy lives for all ([sustainabledevelopment.un.org/topics](http://sustainabledevelopment.un.org/topics)).

The attainment of the SDGs can be considered the Apollo moonshot, or the Manhattan Project of our times. And if Einstein were alive today, he would surely be turning his attention to attaining the SDGs. I think it is safe to say this because of his inherent humanity – based on evidence of his interactions with policy-makers at the highest level.

On the eve of World War II, for example, Einstein endorsed a letter to President Roosevelt alerting him to the possibility of developing "extremely powerful bombs of a new type" and recommending that the United States begin similar research. Emerging from this exchange, the Manhattan Project would eventually win the race to develop nuclear bombs.

But having seen the power of such weapons, Einstein was also quick to denounce the idea of using them. In 1955, along with nine other eminent persons, including the

Nobel Laureate Linus Pauling, Einstein joined with Bertrand Russell to sign the so-called Russell-Einstein Manifesto.

"We are speaking on this occasion, not as members of this or that nation, continent, or creed, but as human beings, members of the species Man," says the Manifesto. It continued: "We have not yet found that the views of experts on this question depend in any degree upon their politics or prejudices. They depend only, so far as our researches have revealed, upon the extent of the particular expert's knowledge."

Such concepts are in full agreement with the role of academies of science today when presenting scientific advice to governments – the role of the 'honest broker'. That is, the advice should be based on the most up-to-date verifiable scientific evidence and – also important for its credibility – remain free from political or commercial influence. This is one of the roles played by IAP in the international arena.

And Einstein was not shy about straying from the world of science into the world of politics.

"My life is divided between equations and politics," he is reported to have said on several occasions. In particular, he was a dedicated anti-racist. Indeed, he spent a great deal of time defending immigrants and other minorities. Of course, Einstein himself was an immigrant: of Jewish descent, he happened to be in the US when Hitler came to power in Germany in 1933 and never returned.

Although Einstein did not accept many of the honorary degree invitations he received, in 1946 he did accept to go to Lincoln University in Pennsylvania, a traditionally black university. In his speech, he said: "The separation of the races is not a disease of the coloured people, but a disease of white people," adding: "I do not intend to be quiet about it." (Although he himself did speak up, it is interesting to note that his speech was largely ignored by the press).

Also in 1946, four blocks of black-owned businesses were destroyed by white rioters and law enforcement officials in a neighbourhood of Columbia, Tennessee. Along with Eleanor Roosevelt, Einstein co-chaired the National Committee for Justice in Columbia. He also subsequently joined the American Crusade to End Lynching.

Another quote from Einstein goes: "Peace cannot be kept by force. It can only be kept by understanding."

Whether he was referring to the peace between nations, typified by his stance on the use of atomic weapons, or peace between peoples, as typified by his support for immigrants and the repressed, is not clear.

What is clear is that the Russell-Einstein Manifesto ends with the words: "In view of the fact that in any future world war nuclear weapons will certainly be employed, and that such weapons threaten the continued existence of mankind, we urge the governments of the world to realize, and to acknowledge publicly, that their purpose cannot be furthered by a world war, and we urge them, consequently, to find peaceful means for the settlement of all matters of dispute between them."

Such words are typical of the emerging field of science diplomacy. As Canadian Daryl Copeland wrote recently in the journal *Science & Diplomacy* (<http://www.sciencediplomacy.org/perspective/2015/bridging-chasm>): "The planet is imperiled by a host of vexing, 'wicked' issues for which there are no military solutions. From

climate change to diminishing biodiversity, nanotechnology to ecosystem collapse, genomics to cyberspace, these issues share one feature: they are rooted in science, driven by technology, and immune to the application of armed force."

If Einstein were alive today, I propose that he would be a 'science diplomat' and his energies would be turned to ensuring a more equitable planet for all – a planet on which 7 billion people live free from poverty and hunger, and free from repression. These are today's grand challenges – challenges that require new ways of thinking if we are to solve them.