

Under the motto “Science Bridging Nations”, the “German-Turkish Year of Research, Education and Innovation” was launched in January 2014 in Berlin. This joint initiative of the German Federal Ministry of Education and Research and the Turkish Ministry of Science, Industry and Technology aims to highlight the scientific cooperation between the two countries and to support new forward-looking joint projects. In this way, both countries intend to rise to the global and social challenges by providing suitable solutions and developing new technologies.



Deutsch-Türkisches Jahr der  
 Forschung, Bildung und Innovation 2014  
 Türk-Alman Araştırma,  
 Eğitim ve İnovasyon Yılı 2014

On the occasion of the German-Turkish Year of Science, the Leopoldina and the Humboldt Foundation have started a joint format: the German-Turkish Science Dialogue. The initiative highlights the contribution of scientists in tackling the systemic challenges of future developments: in societies, spaces and economies, in environment and health, as well as in the research-driven advancement of science and the innovation-based development of new technologies.

The science landscape is a “mosaic” of ideas and findings, crossing boundaries of disciplines and nations. Thus, the German-Turkish Science Dialogue aims to foster the dialogue between scholars from Germany and Turkey and to create a fruitful environment for future collaborations. Additionally, it gives outstanding scientists the opportunity to present cutting-edge scientific findings to academia and professionals. The format comprises a series of short conferences on selected interdisciplinary topics. Adjacent panel discussions enable further insights and critical dialogues. The initiative emphasises scientific excellency, mutual gain and freedom of scientific work as pillars of international scientific cooperation.

The **German National Academy of Sciences Leopoldina** brings together the expertise of some 1,500 distinguished scientists to bear on questions of social and political relevance, publishing unbiased and timely scientific opinions. It represents the German scientific community in international committees and pursues the advancement of science for the benefit of humankind and for a better future.

The **Alexander von Humboldt Foundation** is unique in that it not only provides individual sponsorship for outstandingly qualified researchers but also integrates them in a world-spanning network of excellence during their entire lifetime. This “Humboldt Family” connects the world’s academic elite with Germany.



**Leopoldina**  
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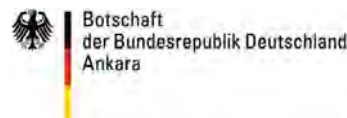
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[www.leopoldina.org/de/science-dialogue](http://www.leopoldina.org/de/science-dialogue)

In cooperation with  
 Istanbul Technical University  
 German Embassy Ankara

**İTÜ**



## Networked Challenges

Tectonics - Megacities - Urban Planning

1<sup>st</sup> German-Turkish Science Dialogue

24<sup>th</sup> October 2014  
 Istanbul Technical University  
 Faculty of Architecture · Taşkışla Campus  
 34743 Beyoğlu · Istanbul · Turkey



# Networked Challenges

## Tectonics - Megacities - Urban Planning

Reconstruction of continental drift over more than 2 billion years is an ever fascinating task for Earth Sciences. This applies especially to Europe and Asia, since these areas represent a collage of “microcontinents” separated by mountain ranges formed during collision. Scientists from Germany and Turkey are trying to unveil this complex evolution, with many questions still open for the Palaeozoic era (between circa 545 and 250 million years).

Few are aware that continental drift had and still has a vast impact on the evolution of life and the history of mankind. Plate tectonics has placed countries at different latitudes, which – together with geomorphic agents – control landscapes, climates, soils and ecosystems. Regional variation of these factors has resulted in divergent developmental paths of human societies. Plate tectonics also controls the formation of mineral resources whose uneven distribution is a permanent source of conflict. Besides, convective flow of the earth’s mantle creates volcanism and active faults responsible for earthquakes and tsunamis.

Nowadays, the interaction between mankind and nature is increasingly multifaceted. By altering the natural parameters and creating new forms of resilience and adaptation, the human actors cause bi-directional changes on both environment and societies. These are particularly reflected in the urgent need to develop solutions for the sustainable use of natural resources - including basic ones like water, air, energy and physical space.

The “equation” goes far beyond a simple cause-effect paradigm, as the resulting effects in turn interact with each other by complex patterns and processes. In connection with the high pressure on the environment, especially densely populated spaces – such as megacities – turn into neuralgic spots. Already most of the earth’s population lives in urban areas and megacities are expanding dramatically. Thus, the human-nature interaction turns out to be one of the key issues of the future. This calls for innovative solutions and integrated approaches for such networked challenges.

# Programme

**Friday, 24<sup>th</sup> October 2014**

Istanbul Technical University · Faculty of Architecture  
Taşkışla Campus · Beyoğlu · Istanbul  
Conference Amphitheatre

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**13:30 - 14:00**

**Official opening · Introductory remarks**

Representatives of the organising institutions:

Professor Dr Sinan Mert Şener

*Istanbul Technical University · Faculty of Architecture*

Dr Marina Koch-Krumrei

*German National Academy of Sciences Leopoldina*

Dr Nora Jennifer Schneevoigt

*Alexander von Humboldt Foundation*

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**14:00 - 14:30**

**The “United Plates of Europe”**

**Geodynamic Evolution and Historical Consequences**

Professor Dr Wolfgang Franke

*Goethe-University of Frankfurt/Main*

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**14:30 - 15:00**

**Earthquakes and Rocks, and their Lessons for the Society in Turkey**

Professor Dr Ali M. Celâl Şengör

*Istanbul Technical University*

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**15:00 - 15:30**

**Break · Networking opportunity**

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**15:30- 16:00**

**Orogeny, with Special Emphasis on Anatolia**

Professor Dr Aral I. Okay

*Istanbul Technical University*

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**16:00 - 16:30**

**Future Megacities**

Professor Dr Frauke Kraas

*University of Cologne*

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**16:30 - 17:00**

**Role of Sustainability in Urban Planning of Megacities: Opportunities and Challenges for Sustainable Building Materials**

Professor EngD Thomas Gries, Dr Udiyasinh Gohil

*RWTH Aachen University*

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**17:00 - 17:30**

**Break · Networking opportunity**

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**17:30 - 18:00**

**“Initiate”: A Research Based Practice in Istanbul**

Selva Gürdoğan, Gregers Tang Thomsen

*Superpool Istanbul*

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**18:00- 18:30**

**Wrap-up discussion**

**Moderation**

EngD Bayram Aslan

*RWTH Aachen University /*

*TU9 - German Institutes of Technology*

The conference links past, presence and future. It probes into the origin of the “United Plates of Europe” addressing also present-day stress-fields and active fault zones as well as environment-society interdependencies. Against this geological background, the future of megacities and their organic development is discussed:

*How much “city” does the environment support? How does tectonics influence the development of cities in areas of increased seismic activity, such as the European-Asian contact area? Which threats are posed by natural disasters and other vulnerabilities? Which development patterns are characteristic for megacities? Which concepts can be developed for a sustainable “design” of megacities?*