

Spatial Social Research – Seismograph and Catalyst

Continuity and Change – Research Programme 2015–2018

Seismograph and Catalyst – Between Excellence and Relevance

Integrated Research – National and International Cooperation

Research Programme 2015-2018

Since it was established 20 years ago, the Leibniz Institute for Regional Development and Structural Planning (IRS) has come a very long way. Starting from its founding idea as a research institute for accompanying structural change and associated planning processes in former East Germany, the institute developed the profile of a social science-based spatial research body. The research programme 2015-2018 is a reflection of this ongoing transformation.



are presented from page 4 of this issue onwards.

With its new research programme, the IRS aims to be both a "seismograph and a catalyst". It is with these metaphors that the Leibniz motto "theoria cum praxi" finds its expression as the particular mission of the IRS. In the following, we will therefore shed light on methods and themes of knowledge transfer in addition to knowledge-oriented basic research.

"What is social science-based spatial research?" It was to this question that the IRS dedicated one of the 2006 editions of the institute magazine. At the time, the focus was on different spacial concepts and dimensions based on "spatial manifestations of structural changes in modern industrial societies". Consequently, the institute directed its focus to the research concept "social science-based spatial research", which has been providing direction in localisation of IRS research in different (sub-)disciplinary and thematic discourses ever since. The continuous development of this vision is, until today, a guarantor of the fact that new accents - from the scientific community as well as the social reality - find their place in the institute's research profile.

"When we speak of "spacial social research" in our research programme 2015-2018, we are referring specifically to this process of evolution in our research profile," says IRS Director Prof. Dr. Heiderose Kilper. "Our interest in both theoretical and empirical knowledge is oriented towards the spatial relations and spatial contexts of social action." By shifting focus to action from space - as it was the case ten years ago - the processuality and, therefore,

governance and institutions are once again gaining significance in IRS research. Inextricably linked to practical action are also knowledge and innovation, which form the basis for socio-spatial development processes. The

"Our interest in both theoretical and empirical knowledge is oriented towards the spatial relations and spatial contexts of social action."

new research programme also places much greater emphasis on crisis and resilience – terms which refer to the uncertainties and severe disruptions of routines of action which have existed until now, but also to attempts to create adaptability. "These three pairs of terms now constitute interdepartmental main focuses," says Kilper.

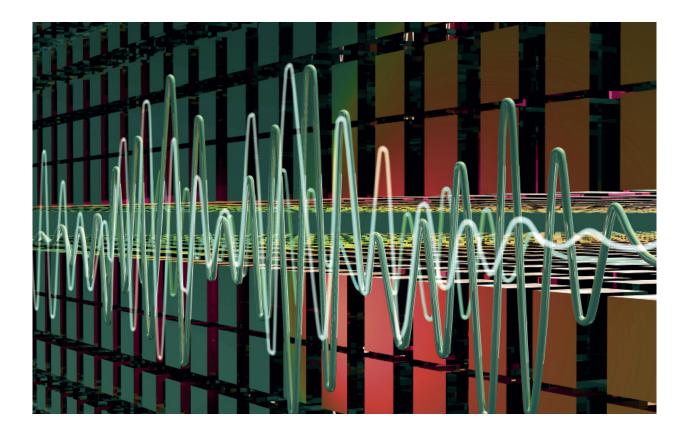
At the heart of IRS research programmes are budget-financed lead projects of the five departments. These balance continuity and change in IRS's research. Three departments are deepening their research into innovative processes, Germany's energy transition and urban regeneration policies, while two departments are orienting their expertise in innovative action and urbanisation/planning history towards new research objects. All lead projects

CONTACT



Prof. Dr. Heiderose Kilper, Tel. +49 3362 793-115, kilper@irs-net.de

Prof. Dr. Kilper is director of the IRS, and was responsible for leading the preparation process for the research programme 2015-2018. The main focuses of her research are spatial resilience strategies, key figures in spatial development, governance and spatiality and cultural landscape research.



Seismograph and Catalyst – Research between Scientific Excellence and Societal Relevance

IRS research programmes run for three to four years. They form the basis for shaping the institute's profile in the long-term. This means they principally move within the reference system of the evaluations of the Leibniz Association, whose most important criterion is scientific excellence. But the Leibniz motto goes even further: The research should be not only excellent, but also relevant to practice. This is an aspect which the IRS has really made its own, and it has therefore chosen to make social relevance a central selection criterion when selecting topics for research. Linked to this is the idea that modern knowledge transfer is something which goes without saying.

Basic research and social reality – these terms are often perceived as representing two different worlds which can only be linked with great difficulty. In this respect, the IRS has a certain advantage over other research institutions – in the natural sciences, for example

– as it focuses its research on different social realities, creating an inherently close link between the "ivory tower of excellent research" and the "world out there". And yet, knowledge transfer is not something which is automated – it is a challenging task precisely because the results gained have direct relevance for administration, civil soci-

"Pathways to Impact" means that fundamental impacts and the ways to reaching them are defined, and that past measures and their effects are analysed retrospectively so that they can be optimised in future.

ety or the economy. This is why, in the course of the preparations for the research programme 2015-2018 which leads the institute into its evaluation at the turn of the year 2017/2018, the director, heads of departments and the Science Management and Communication Department have created a modern concept for knowledge trans-

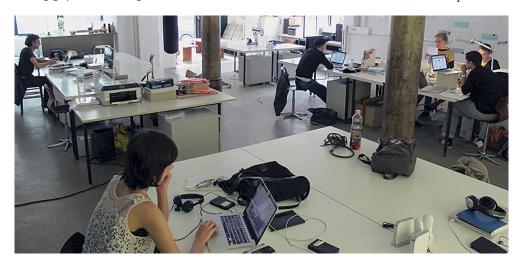
fer. It is meant to ensure that, when carrying out their scientific work, researchers are sensitive to the urgent issues society faces while also providing impulses for development processes.

In doing so, the IRS uses the so-called "Pathways to Impact" approach. The approach is from the UK, where it was introduced as legally binding by the UK Research Council a few years ago in order to better plan and systematically observe the potential impacts of excellent research outside the scientific community. "Pathways to Impact" means that fundamental im-

DYNAMICS OF ECONOMIC SPACES

Local Anchors of Translocal Knowledge Communities: New Focal Points of Knowledge Generation and their Territoriality

The lead project looks at new, open locations of creative knowledge collaboration. These places go by different names such as fab labs, co-working spaces, grassroots labs, design thinking studios or maker spaces. What they all have in common, however, is the fact that they are permanent organisations which make workspaces and technical infrastructure available to users temporarily, thus demonstrating a high degree of social openness. In these places, however, actors are consciously brought together in order to encourage creative work results (curated social openness). What is typical for such places is also that specific, everyday problems are taken as starting points for looking for creative solutions. These places therefore offer an alternative to classic research and development, which is oriented towards finding gaps in knowledge and solutions to them.



As such open places become more widespread all over the world, urgent research questions are raised which are to be dealt with in the lead project. First of all, almost no research has been done into what effects these places have on the development of the regions they are based in. Are there a majority of positive impulses for the region (such as new jobs thanks to spin-offs or a strengthening of regional innovation) or are there problematic side effects for the region (e.g. 'idea drain' – when international companies take ideas away from the region because of these places)? Secondly, there are questions of the new uncertainties for knowledge workers in terms of these open forms of knowledge sharing. How are uncertainties divided up in relation to individually achieved contributions and profits gained by individuals from ideas? Which individual ways of dealing with these uncertainties are being established? These are the questions which are being investigated in an internationally comparative research design focusing on the case study cities of Berlin, Amsterdam and Detroit.

Head: Prof. Dr. Oliver Ibert

Project Team: Verena Brinks, Felix C. Müller, Dr. Suntje Schmidt, N.N.

pacts and the ways to reaching them in the form of specific measures - are defined, and that past measures and their effects are analysed retrospectively so that they can be optimised in future. "At a workshop we presented and analysed several different such 'Pathways to Impact' in order to sharpen our understanding of knowledge transfer," says Dr. Timothy Moss, deputy director of the IRS. "The knowledge gained from this is very valuable to us – both in terms of the impacts and in terms of how they are reached." What stood out, for example, was the broad range of possible triggers for an impact – from the publication of a press release to a request for an interview, from holding

> consultation talks to a knowledge transfer event within the context of a project.

> "The Pathways exercise taught us to plan knowledge transfer in a more integrated way across all departments and areas, and to remain open to unexpected possibilities," says Jan Zwilling from the IRS Press Of-

fice. In order to be well-prepared, IRS will in future be broadening its range of external communication formats (for example via social media) and focusing on a few topics which are central to knowledge transfer. These topics touch on interdisciplinary research subjects and link them with areas where society needs information. "We are aware that such focuses are fluid to a certain extent, and constantly need to be developed further. This is why we are going to link our own initiative in terms of choosing topics with openness for new impulses," says Zwilling. A selection of the focus topics will now be presented, and linked with the information about the lead projects in each of the five research departments.

Focus Topic Urban Transformations

As the theme of Science Year 2015 in Germany is "City of the Future", issues of sustainable urban develop-

ment are being put in the spotlight in terms of social, economic, infrastructural, cultural and ecological aspects. Thanks to a broad range of thematic references in the research programme 2015-2018, the IRS is in a position to be able to bring highly relevant expertise to this debate. The research department "Dynamics of Economic Spaces" researches cities in their roles as the local anchors of translocal knowledge communities, while the research department "Institutional Change and Regional Public Goods" focuses, among other things, on Germany's energy transition, and visions for "Post-Carbon Cities of Tomorrow" (7th EU Framework Programme for Research and Technological Development). Knowledge of social disparities in structurally weak cities and urban policies regeneration brings us to the research department "Regener-

ation of Cities and Towns". The new head of department is currently jointly appointed together with the Technical University of Berlin, and will put emphasis on the transformation of urban spaces in an international context.

INSTITUTIONAL CHANGE AND REGIONAL PUBLIC GOODS

New Spaces of the Energy Transition between Power, Materiality and People





The German energy transition has brought about changes as regards spatial structures and the ways they are utilised and at the same time it poses a challenge for spatial policy. The spatial design of so-called "energy transitions" through politics, administration, business and civil society is not only a problem for the whole of society in Germany, but also in many other countries. The lead project directs focus towards an aspect of the German energy transition which is particularly promising both politically and scientifically: new energy spaces. By this are meant not only the changes to the physical relationships of more decentralised electricity generation systems and the required distribution network structures, but also the creation of new energy policy action spaces (such as bioenergy regions), the construction and shaping of new energy landscapes, and the transformation of the scalar relationships between energy policy and the energy sector. Particular attention is given to the ambivalences, conflicts of interest and power struggles which surround new energy areas in addition to research into how their potential can help support the German energy transition.

The lead project investigates new energy spaces as expressions and vehicles of the energy transition, using empirical analyses from Germany, Canada and Scandinavia. Some examples are the creation of new action areas around renewable energies, tensions between old and new energy regions, and experimentation spaces for energy policy in cities. These cases are brought to light from complementary, theory-based perspectives – in terms of power, materiality and people. In this way, questions are asked as to how power relationships and constellations are

changed in new energy spaces, which socio-spatial materialities are shaped by new energy spaces, and which role key actors play in the reconfiguration of energy spaces.

Head: Dr. Timothy Moss (content), Andreas Röhring (organisation) **Project Team:** Andrea Bues, Dr. Ludger Gailing, Prof. Dr. Kristine Kern, N.N.

DYNAMICS OF COMMUNICATION, KNOWLEDGE AND SPATIAL DEVELOPMENT

Innovation in Rural Municipalities. Conditions, Actors, and Processes of Creative Community Development

This lead project is researching municipalities in structurally weak rural areas where social actors from politics, administration, business and/or civil society

have stated themselves to seek creative ways around their problems, and to speed up the development of their community with the help of innovative projects. These regions are typically characterised by a downward spiral. Structural deficits such as below-average economic productivity, unsatisfactory career prospects, inadequate infrastructure and little opportunities for social and group activities all increase tendencies towards exodus and demographic change. In view of this challenging situation, rural municipalities are forced to develop innovative ways of solving problems. While towns and cities are seen as incubators for innovation, rural regions are instead regarded as being hostile towards innovation. And yet, in some places we can see projects led by people who experiment with new ideas and practices and launch innovative projects.

The lead project is about researching these innovative projects. We ask which (regional) contextual conditions are necessary to aid the creation and continuation of such creative processes and innovations, who the participating actors are (key figures in particular) and in which social processes the innovations take place as part of rural community development, especially asking about the different

forms of communication. The questions can be dealt with through focused ethnography. Within this framework, participatory observations of selected groups of actors are combined with document analyses, network studies and problem-centred interviews with central actors. These qualitative methods are accompanied by statistical surveys of participating citizens and community members. The case study regions will be six structurally weak rural municipalities in Germany.

Head: Prof. Dr. Gabriela B. Christmann **Project Team:** Thorsten Heimann, Dr. Anika Noack, Dr. Ralph Richter, N.N., N.N.





Focus Topic Knowledge, Creativity, Innovation – Impulses for Spatial Development

Research on innovative processes has many bases in the IRS; at the same time it provides highly relevant and

sought-after expertise in the context of spatial development. Thanks to the main focuses of its past research programme, the institute has built up a great amount of expertise on how innovation processes happen in terms of time and space, in addition to in the field of social innovation, which is further profiled in the research programme 2015-2018.

The lead project of the research department "Dynamics of Communication, Knowledge and Spatial Development" focuses on innovative projects in rural communities which are making a contribution to spatial development. Of particular interest here are the contextual conditions and processes of socially innovative action. The lead project of the research department "Dynamics of Economic Spaces" fo-

cuses on the spatiality of innovative processes, placing particular emphasis on creativity as a factor which connects knowledge and innovation. The German Research Foundation (DFG) project "InnoPlan" is investigating four case studies to find out how new ideas enter the field of spatial planning.

Focus Topic Crises, Vulnerabilities and Resilience

The pair of terms "crises and resilience" has recently entered the IRS research profile as part of its new research programme. Not only is this the expression of the interest of science – it is also the result of close observations of social debates over the past years. Discussions on the dynamics of crises and possible

protective mechanisms made up a considerable part of the debate.

During the years 2015-2018, the IRS will make a significant contribution to the Leibniz Research Alliance "Crises in a Globalised World", as part of which it will work with its partners to focus its research on the following topics: Expert crises/Crisis experts (planned third party fund application from the research department "Dynamics of Economic Spaces"), Environmental crises/Crisis dynamics in times of climate change (planned third party fund applications from the Research Department "Dynamics of Communication, Knowledge and Spatial Development") in addition to Crisis as an explanation of the world/Semantics of cri-

ses and upheaval. In doing so, the IRS will be able to draw on the completed cross-departmental project "Vulnerability and resilience from a socio-spatial perspective" (2010-2012) and related follow-up activities.

"Of course, this choice of topics is not final," says Zwilling. "In the coming years, the IRS will actively address other topics in addition to these, focusing on the options society has in addressing climate change, the energy

REGENERATION OF CITIES AND TOWNS

UrbanReg – Urban Regeneration Policies and Socio-Spatial Disparities in Structurally Weak Cities

While urban research has directed a lot of attention towards cities which are shrinking as a consequence of deindustrialisation, suburbanisation and declining birth rates, in recent years we have seen increasing evidence that points towards regeneration of the cities. This trend is particularly visible in relation to many cities in East-Central Europe. To describe the blossoming of these cities, research uses many terms beginning with the prefix "re": Re-urbanisation, renaissance, resurgence or regeneration of cities.





The lead project is investigating regeneration planning policies in selected cities in Germany and Poland. This takes into account the strong internationalisation of planning policies within the EU. In many cases, urban policy involves the transfer of international policies and "best practices". Many eastern European countries, for example, have copied urban regeneration policy approaches from the UK stemming from the neoliberal era. These include growth-oriented approaches, public-private partnerships, concentration on certain areas of cities, prioritisation of flagship projects and orientation towards social target groups such as highly qualified or creative people.

The lead project is investigating which regeneration policies are being pursued in relation to economic decline and falling populations in selected

structurally weak cities in Germany and Poland, and which policy transfers can be observed. As part of this, the negative sides of planning policies – which are often ignored in the light of successful regeneration projects – are also looked at. This includes, in particular, the increasing socio-spatial polarisation which can be observed within the cities. The project is meant to demonstrate the extent to which the investigated cities are disintegrating into wealthy city centres with attractive architecture on the one hand, and socially poor areas which have been "left out" by a lack of investment; in addition to the planning concepts which can counter this.

Head: N.N.

Project Team: Dr. Matthias Bernt, Dr. Manfred Kühn, N.N., N.N.

SCIENTIFIC COLLECTIONS

The "Car-Oriented City" as an Area of Conflict. Open Space Planning in Inner-City Areas as an Urbanisation Strategy in East and West Germany since 1945



The post-1945 development of European cities was crucially determined by the space taken up by road traffic and the mobility patterns linked to this. This led to a paradoxical development: While the planning-related guiding principle of the "car-oriented city" has been losing its effectiveness since the 1970s at the latest, mobility and urban car traffic have continued to increase in many areas. Right up to the present day, the tension between some planning concepts and the sometimes conflicting ideas of different interest and population groups occasionally leads to massive conflicts. At the same time, the formation of polarised types of space – traffic-poor and highly pressurised areas – can be observed.

In several case studies, the lead project investigates central contradictions which have yet to be researched within the development, from a historical perspective. For example, the fact that a guiding principle of a "car-oriented city" can hardly be spoken of in the case of the GDR and therefore for the former East Germany, has not yet been researched. Also, both west and east German cities saw numerous expansion and dismantling projects in favour of and against car traffic, which often took place simultaneously and conflicted with each other in terms of their functions. These projects were of crucial significance for the urban qualities and multi-functionality of the affected city areas, which are particular focuses of the lead project. The project also views the partial reclaiming of urban spaces since the 1970s as an indicator of the fundamental transformation processes taking place in urban society. The analysis focuses on the role of municipal actors, planners and the public, the reshaping of the building stock through street expansion projects, and the link between road traffic and the shaping of urban open spaces.

Head: PD Dr. Christoph Bernhardt

Project Team: Dr. Harald Engler, Elke Beyer, N.N., N.N.

transition, or the role of key figures in spatial development." The guiding principle will be to build many new "Pathways to Impact" and bring academic excellence and social relevance together in such a way that they become inseparable.

CONTACT



Dr. Timothy Moss, Tel. +49 3362 793-185, MossT@irs-net.de

Dr. Timothy Moss is deputy director of the IRS, and coordinated the elaboration of the institute's concept on knowledge transfer. His research focuses on the transformation of socio-technical infrastructure systems (water, wastewater, energy), water governance and public goods.



Jan Zwilling, Tel. +49 3362 793-159, zwilling@irs-net.de

Jan Zwilling works in the IRS Press Office. He plays a crucial role in the institute's knowledge transfer.



Integrated Research – Cooperation as Part of the Research Programme 2015-2018

The IRS is an interdisciplinary institute whose researchers deal with issues which are highly relevant from a spatial and social viewpoint, from different perspectives. The integration of geographical, sociological and economic approaches with those from the fields of politics, planning and history leads us to view scientific work as an integrated activity, and to give particular support to internal and external cooperation.

For the year 2018, two IRS departments are planning a conference entitled "Coworking spaces and fab labs as accelerators of urban regeneration". The event will create a link between two strands of the Institute's research: On the one hand, it is acknowledged that many cities have witnessed the establishment of new places for creative cooperation (i.e. co-working spaces), and that these bring about fundamental changes to spatiality and the social anchoring of knowledge work. On the other hand, this is linked to the hopes of urban development policy that positive development impulses will emanate from these places, and that they will be able to contribute to urban regeneration. Combining economic-geographical and planning perspectives provides the opportunity to gain highly relevant knowledge for academia as well as for practice.

"This example shows the potential there is in the interdisciplinary cooperation of the IRS," says IRS Director Prof. Dr. Heiderose Kilper. "Not just varying perspectives, but also different methodological approaches can be assets to research." This is why the Research Programme 2015-2018 affords a high degree of importance to the strategic planning of cooperation - both in-house and with national and international partners. The IRS gives priority both to internally generated cooperation formats, such as cross-departmental projects or cooperation contracts with universities, and to the

active involvement in external initiatives such as those with the Leibniz Research Alliances.

The internal organisation of the IRS is based on five research departments, which have their own independent profiles and lead projects. They are linked to different disciplinary contexts and therefore develop individual themes and methodological approaches. "This organisational principle offers many advantages, for example in terms of the breadth and foundations of the Institute's overall profile," says Kilper. "At the same time, there is the danger of 'pillarisation', which is why we take particular care to ensure that IRS research is always more than the sum of the work done in the different

departments." A fundamental building block for this internal cooperation is represented by the budget-financed cross-departmental projects. This involves common conceptual bases being developed to form themes parallel to those of the research departments' lead projects, and being worked on on the basis of selected issues which are highly relevant to empirical research.

Currently, scholars from four departments are investigating the role of key figures as driving forces of spatial development (2013-2015). In addition to final activities such as an international conference and a Special Issue, it is intended that this project will be followed by third party funds applications. This intention will be extended further in

a follow-up project from 2016, which will offer a working space for interdepartmental project applications.

We take particular care to ensure that IRS research is always much more than the sum of its parts produced across the various departments.

The research programme places particular emphasis on the planning of interdisciplinary events, such as the coworking spaces conference described above. Once each year, at least two research departments organise international conferences on issues such as key figures in spatial development, innovation under adverse circumstances, post-1945 re-urbanisation policies and bioenergy regions.

The Leibniz Research Alliances launched in 2013 are the ideal format for both linking competencies within the IRS and deepening cooperation with other Leibniz institutes on interdisciplinary topics. The Leibniz Research Alliance "Crises in a globalised world" is fed by IRS competences which are anchored in the expertise of the director and the profiles of the research departments "Dynamics of Economic Spaces" and "Dynamics of Communication, Knowledge and Spatial Development".

This has contributed to profiling research on "crises and resilience" (see introduction to this issue), while also promoting connections to other institutions and supporting the profile of the Leibniz Association. The same applies to IRS participation in the Research Alliances on "Historical Authenticity" and "Energy Transition".

And last but not least, universities are particularly important cooperation partners for the IRS, which is itself not a higher education institution. They represent important research partners due to their links with institutes for sociology, geography, planning or social sciences. Furthermore, joint appointment procedures offer the opportunity to gain highly-qualified

research personalities for leading positions within the IRS. The link to universities also guarantees the implementation of the IRS strategy to support the next generation of young researchers.

The period 2015-2018 will see four individual projects with universities being carried out. Furthermore, the IRS is to be involved in six collaborative research proposals. In addition to the existing joint appointments, the head of the research department "Regeneration of Cities and Towns" will be renewed as a joint position with the Technical University of Berlin, and a junior professorship in Applied Economic Geography will be created at the Humboldt University of Berlin.

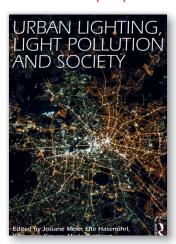
CONTACT



Prof. Dr. Heiderose Kilper, Tel. +49 3362 793-115, kilper@irs-net.de

Prof. Dr. Kilper is director of the IRS, and was responsible for leading the preparation process for the research programme 2015-2018. The main focuses of her research are spatial resilience strategies, key figures in spatial development, governance and spatiality and cultural landscape research.

Recently published
The first book to look at
light and light pollution from
humanities and social sciences
perspective



Artificial light is an integral part of people's lives in many societies of the world. It is a symbol of urbanism, modernity and safety, which decouples the rhythm of our activities from the natural phases of day and night. During the second half of the 20th century, the use of artificial light was, above all, a question of functionality and technology. Recently, however, both the potentials of city light design and its possible negative consequences have been at the centre of interest. This is the starting premise of the book "Urban Lighting, Light Pollution and Society", which was published by the Technical University of Berlin and IRS scholars from the humanities, social sciences and planning fields. It is the first book to bring together debates and research conclusions about light and light pollution from social, cultural, geographical, political and historical perspectives.

The book is based on a conference, which took place at the IRS in June 2013 as part of the collaborative research project "Loss of the Night". Both are premised on the finding that artificial light is a very complex phenomenon, the use of which has implications in the fields of ecology, energy, business, culture, society or planning. "Light fulfils – and

has always fulfilled – multiple, sometimes contradictory social functions," says co-editor Katharina Krause from the IRS. "Our book, therefore, gives a very broad overview of social sciences and humanities research in this field, integrating it into a holistic, multi-dimensional understanding of artificial light." This represents, on the one hand, a contribution to the defragmentation of research in this field, and on the other, it is meant to create the basis for a well-founded social and political approach to dealing with artificial light.

The book is divided into three sections, each with its own introduction and several articles dealing with the perceptions and practices of artificial lighting, conflicts and regulations in addition to the costs of light and darkness. The book winds up with the chapter "Towards a brighter Future? Conclusions for Lighting Research and Policy", which offers a glance into the future and discusses the implications of the research conclusions presented for science and politics.

MEIER, Josiane; HASENÖHRL, Ute; KRAUSE, Katharina; POTTHARST, Merle (Ed.): Urban Lighting, Light Pollution and Society. Routledge, 2014, 312 pages, ISBN 978-1-13-881397-7

IMPRINT

IRS aktuell No 8, March 2015 Newsletter for Social Science-Based Spatial Research



Publisher:

Leibniz Institute for Regional Development and Structural Planning (IRS) Flakenstraße 28-31 | 15537 Erkner

tel. + 49 33 62 793-0 | Fax + 49 3 62 793-111 E-Mail: zwilling@irs-net.de The IRS is member of the Leibniz Association.

Director: Prof. Dr. Heiderose Kilper

Staff: Jan Zwilling (v.i.S.d.P.), Gerhard Mahnken,

Layout:

Petra Koch Henrika Prochnow

The contributions in this newsletter are a co-product of Jan Zwilling and the reseachers of the IRS.

Pictures:

Cover: @andipantz/istockphoto.com;; p. 2: @Bim/istockphoto.com; p. 3: @Jurgen Ziewe/shutterstock.com; p. 4: @Deskmag/commons.wikimedia.org; p. 5 top: @J.D.S/shutterstock.com; p. 5 bottom: @marcobir/shutterstock.com; p. 6 top: @frankenschulz/flickr.com; p. 6 bottom: @scot/flickr.com; p. 7 top: @Peter Morgan/flickr.com; p. 7 bottom: @St BC/commons. wikimedia.org; p. 8: @Dirk Ingo Franke/commons.wikimedia.org; p. 9: @Melissa North/

Portraits: ©Frank Bentert: p. 8 top, ©Markus Mey: p. 2, p. 10; ©Nadine Schätzel Baillon: p. 8 bottom; more pictures: IRS and privat