



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
ISTITUTO DI STUDI SUPERIORI
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INSTITUTE OF ADVANCED STUDIES

ISA Lecture 2018

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SEPTEMBER 2018

11 September

Ariel Mira

Tel Aviv University

Mauri Caterina – LILEC

*Department of Modern Languages,
Literatures, and Cultures*

What's in a numeral?

Most words change their meaning during their lifetime. Interestingly, they are even routinely replaced by words which carry the very same meaning. But the number words are an exception. They tend not to change, and they are replaced far more slowly than other lexical items (Pagel et al., 2013). In order to solve this numeral puzzle we turn to the discourse use of standard and of number expressions, because linguistic change and replacements are the outcome of the way we use words in natural discourse. Starting with standard words, it's a truism that there just aren't enough lexical items to cover all context-specific concepts (Carston, 2002). Most lexical items, such as nice, must undergo contextual adjustment to convey the speaker-intended ad hoc concept (e.g., 'nice enough for me to invite to my party'). The reason is that the lexical domain of which 'nice' is a member is "sparse": It contains relatively few competing members in the near semantic neighborhood (e.g., attractive, enjoyable), which moreover differ from each other on a number of parameters. Nice must then somehow serve for a wider range of 'niceness'. The typical interpretative process adjusts its meaning by encroaching on its neighboring lexemes (e.g., 'nice close to attractive'). Interestingly, the same is true even for concepts which are defined precisely, e.g., straight, triangle.

The linguistic number system is quite different and quite unique. It offers an extremely dense partition of the relevant semantic field. There exist an unusually high number of distinct number expressions in the immediate semantic neighborhood (e.g., 3, 4, 6, 7 for 5). The number expressions moreover differ from each other on a single parameter. There is no need to adjust the meaning ('N') of number expressions, then, because there's enough of them. Hence, the very dense supply of number expressions keeps each of them distinct and literally faithful (i.e., interpreted as 'exactly N', blocking encroachment upon neighboring number expressions). Now, historical change and replacement are the natural outcome of the variable uses standard words are put into. But since numerals tend to not undergo contextual adjustments, their meaning remains stable, and in no need of replacement.

18 September

Poulot Dominique

*Université Paris 1 Panthéon-
Sorbonne*

Tomassini Luigi

Costa Sandra – DBC

Department of Cultural Heritage

The European Museums, Between Unity and Diversity

One of the challenges today is probably to rethink the old European encyclopaedism of the Enlightenment, so closely linked to the modern idea of the museum, in an age of the « global museum ». In fact, the term was not entirely unknown in the nineteenth and twentieth centuries: it evoked a huge collection representing all cultures, all periods and all kinds of objects. At the time, the claim to universality was associated more with World's Fairs, and with various publications that were like 'paper museums', sometimes even, as was the custom, including 'museum' in their titles, as, for example, the Musée universel, a French illustrated weekly review published in the 1870s.

The adjective 'universal' has not been used officially over the last two centuries in relation to the national museums, and its uses in critical literature have remained largely metaphorical. The writers of fin-de-siècle nineteenth-century wrote about what they called a cosmopolitan art, that was supposedly common to all humanity. Our relationship to that European identity is very different today, and its forms are highly diverse, because of the new museology that emerged between the 1960s and 1980s, and of the critic of what is often considered as an Eurocentric vision of art history, instead of a really universal one.

SEPTEMBER 2018

25 September

Smith Peter

*Victoria University of
Wellington*

Chiani Marco – DEI

*Department of Electrical, Electronic,
and Information Engineering
«Guglielmo Marconi»*

28 September

Kähkönen Kalle

*Tampere University of
Technology*

Bragadin Marco Alvise – DA

Department of Architecture

Smart phones and statistics – where is the connection?

Although we take them for granted, mobile devices such as smart phones are small miracles of engineering and electronics. These devices are constantly evolving and fundamental research and long term planning is always running in parallel to the deployment of the systems that we use. This blue sky research is surprising in its heavy use of statistics and probability. Statistics is used to model the signals received by the mobile devices and the imperfections in the devices.

Statistics is also used to analyse the performance of these devices and even in designing the electronics that processes the signals. This talk will explain where the randomness and statistics arises in mobile phone research and explain the latest trends in statistical research and development of mobile phone systems, with an emphasis on random matrix problems in communication theory.

"Claudio Bonivento" Lions Prize - 10th edition 2018

Need for modern multidisciplinary research and developments to change the built environment sector

The built environment (BE) is a key enabler for functioning of societies in economic and social terms, security, quality of life and overall competitiveness. As a whole the BE can be understood as a heterogeneous complex system formed by multiple-interconnected sub-systems (i.e. products and product systems, services and service systems, human activity systems). For example, the regulatory framework and related public and private decision making at different levels have created a complex sphere where a variety of agendas, their objectives and priorities are blurring the overall picture and targeted harmonized results can be very difficult to reach. The present problems are multidimensional and very tricky requiring new research based breakthroughs and innovations. Positive synergies can be achieved by the inclusion of institutions, companies and people for producing the missing knowledge towards future and success of the BE. This is calling for multidisciplinary research and development where new kind of ecosystems of experts and their organizations are working together and moving towards new solutions. This presentation shall first address the characteristics of the built environment sector as a system. Second, recent examples of multidisciplinary research and its results are to be addressed, those are digitalization of building services and integrated construction project deliveries.



OCTOBER 2018

2 October

**Fernández-Palacios José
María**

Universidad de La Laguna

*Chiarucci Alessandro – BiGeA
Department of Biological, Geological,
and Environmental Sciences*

Islands as natural life experiments

Islands represent the diversity of Earth in all of its forms: geological, biological and cultural. There are at least 20,000 islands of an area greater than 1 km² and millions of smaller ones. These include oceanic islands in a strict sense, atolls, land-bridge islands and continental fragments or micro-continents. Furthermore, below sea level, seamounts are important habitats for sea-life and some of them emerge above the ocean's surface in times of lower sea levels (e.g. during glaciations) and are important for understanding dispersal of species to isolated islands via stepping stones. Islands can be found at all latitude, and all climate zones. Island area varies from New Guinea (0.75 million km²) to rocks less than 100 m² (ten orders of magnitude). Island age varies from ca. 150 My (Madagascar) to just a few years (e.g. Surtsey, born in 1963). Island altitude varies from peaks higher than 4000 m (New Guinea, Borneo, Taiwan, Hawaii) to flat atolls just cm above the sea level.

Isolation varies from more than 4000 km (Marquesas) to hundreds of m (Anglesey, Sicily, Sakhalin, etc.). Some important island features that make them biologically interesting study systems include:

- i. the lower biological complexity of island communities when compared to equivalent mainland ones
- ii. their clearly defined
- iii. the availability of a large range of whatever properties are studied (area, age, altitude, isolation, latitude, richness, etc.)
- iv. the availability of many replicates.

12 October

Gautam Desiraju

Indian Institute of Science

**Dario Braga – ISS
ISA Director**

ISA Medal for Science

Science and society. What do they owe each other?

Science is supposed to be neutral and impersonal but society is dynamic. Should science be influenced by societal and political pressures? Do the expectations that different societies and cultures have from science change the nature of the science itself?

Scientists, owe it to society to provide guidance, leadership and moral stature, but society should provide the framework in which scientists can exercise this role. This can only happen if morality and ethics are not given the go by.

Indic thought is free of ideological fundamentalism and is characterized by epistemological plurality. It is unique in that it says that, in the light of science, anything that is untrue—even in religion—must go.

In our present narcissistic, over competitive world, scientists need to shed their neutrality. If a belief is provided by society that there is something larger than the individual, ethics will naturally flow into science again.



OCTOBER 2018

16 October
Benarroch Eduardo
Elias
Mayo Clinic

Cortelli Pietro –
DIBINEM
*Department of Biomedical and
Neuromotor Sciences*

23 October
Cremer Helmut
*Toulouse 1 Capitole
University*

Barigozzi Francesca –
DSE
Department of Economics

Emotion, Cognition and Autonomic Nervous System: an Interacting Triad

Everyday experience indicates that emotions affect cognitive functions. Reciprocally, cognitive processes alter the intensity of the emotional experience. The autonomic nervous system is a critical link between emotion and cognition.

One key consequence of emotions is the activation autonomic responses mediated by the sympathetic or parasympathetic systems. These responses differentially control the activity of visceral organs including the heart, blood vessels, and gastrointestinal and genitourinary tracts. Visceral inputs triggered by autonomic activity are conveyed to brain areas involved in behavioral arousal, attention, and decision-making. The interactions among emotion, cognition, and autonomic function are controlled by a network of structures distributed throughout the central nervous system. They include the cingulate cortex, insula, amygdala, hypothalamus, and several areas of the brainstem.

These areas are components of both the central autonomic network and the pain modulation network and closely interact with areas controlling arousal and motivation. Recent neuroanatomical, neurophysiological and neurochemical techniques have provided increasing insight into the function of these regions.

Functional and structural neuroimaging now allow identifying networks involved in emotional and cognitive processing and their interactions with autonomic responses in humans. The aim of this conference is to discuss some of these interactions in health and disease.

Who will take care of granny? Providing sustainable long-term care: a looming challenge

Long-term care (LTC) concerns people who depend on help to carry out daily activities. It is delivered informally by families, and formally by professional care assistants, at home or in an institution. The governments of most industrialized countries are involved in the provision or financing of LTC services, but to different degrees. Markets for private LTC insurance exist, but remain thin in most countries. LTC needs appear because of old age dependency, associated with cognitive impairments (like Alzheimer and other forms of dementia or Parkinson) and occurs typically after age 80. The LTC needs arising from this form of dependency represent a major challenge for the decades to come, because of population aging. Currently the family is the main provider, and informal care represents roughly 2/3 of total care. This situation is inefficient, as it leaves some elderly without proper care and often imposes a considerable burden on caregivers. This creates a potential role for public intervention. However, public LTC policy (and private insurance) will interact with informal care, and more generally the exchanges within the family.

Consequently policy design has to account for the induced changes in intergenerational transfers. My lecture will first provide an overview of this problem and then present some of my recent research studying the design of LTC policy.



NOVEMBER 2018

6 November

Turner Raymond J.

University of Calgary

Understanding the mechanism(s) of metal-based antimicrobials

The use of metal compounds as antimicrobial agents has been around since antiquity, only to be replaced by the introduction of organic antibiotics and antiseptics in the mid 20th century. The discovery of penicillin by Alexander Fleming in 1928 began the era of antibiotics. Unfortunately, this era is rapidly coming to an end through as antibiotic resistance is now the norm in most pathogen strains. Since the turn of the century interest into alternatives to antibiotics has seen an explosion of attention into inorganic antimicrobial agents. The interest in my group is the biochemical mechanisms of resistance towards metal-based antimicrobial agents. There is now a strong understanding of resistance mechanisms of bacteria growing as free-swimming stage (planktonic). However, considerably less is understood about the mechanisms of resistance of bacteria towards metals grown in their surface attached sessile state (Biofilms). Furthermore, there is remarkably little understood on how metals are toxic to bacteria. My group has used toxicity profiling to understand fundamental chemical properties contributing to resistance and toxicity. I will also describe our work considering both single species bacteria and environmental microbiome communities. Through such studies, the overarching goal of my research in this area is to obtain insights into the mechanisms of metal resistance/tolerance/toxicity. Such research is of interest as we are seeing more metal-based antimicrobials being implemented for infection control in medicine and agriculture

Zannoni Davide – FaBiT

*Department of Pharmacy and
Biotechnology*

A heart attack: can we re-wire the heart?

Cardiovascular diseases (CVDs) account for 37% of all deaths in the European Union (EU). The major form of CVDs is ischaemic heart disease that in turn leads to a heart attack causing permanent damage to the muscle, since the heart is not capable of regenerating itself.

Heart failure is the leading cause of death in the EU (14% of all deaths), with an enormous economic burden estimated at €59Bn per year. Despite the socioeconomic ill effects of heart failure, treatments are limited to surgical interventions which are detrimental in cost and efficacy.

Regenerative medicine, which aims to create synthetic constructs that can replicate the biological function, may present alternative treatments. This lecture discusses the design of a synthetic cardiac patch to help the heart regain its pumping ability. Special focus will be on the heart conduction system and its re-wiring. The heart muscle contains specialised cells that communicate by bioelectric signals propagating along the cardiac wall.

Damaged heart muscle cannot transmit these signals and as such interrupt their propagation along the tissue. We posed the question whether we can re-wire the heart to help its signal propagate. Taking a multidisciplinary approach, we have developed a synthetic material that is both biocompatible and conductive. We show that by placing a conductive patch that bridges healthy and damaged tissue, propagation of the bioelectric signal is restored.

13 November

Mawad Damia

*University of New South Wales,
Sidney*

Fraboni Beatrice – DIFA

Department of Physics and Astronomy



NOVEMBER 2018

20 November

Baert Barbara

Katholieke Universiteit Leuven

Graziani Irene – DARvipem

Department of The Arts

Kairós, or the Right Moment, in Christian Nachleben & Iconology

The Greek term *kairós*, which expresses the complex idea of ‘grasping the right moment’, travelled through art, literature, and philosophy from antiquity to the present. Combining perspectives from classical reception studies and iconology, my ongoing project at KU Leuven (“*Kairós, or the Right Moment: Nachleben & Iconology*”, 2018-22) deals with the reception of *kairós* in the visual medium from antiquity to the Renaissance. How was the notion of *kairós* visualized in images throughout time, from antiquity to the early modern era? And more specifically, how did text and image work together to transform the notion of *kairós* in various contexts? I gather the largely disconnected ‘textual’ and ‘visual’ research traditions concerning the reception of *kairós* in order to explore, more systematically than has been attempted before, the *Nachleben* of this motif in the visual realm. With special attention for the transformation processes *kairós* underwent, I trace key moments in its transformation history such as the revival of artistic interest in *kairós* (11th-12th century) and the appropriation of *kairós* in the humanist context (15th-16th century). Doing so, I discuss important ‘blank spots’ in the *Nachleben* research regarding the Christianization of the *kairós* concept. New focused research is necessary in the semantic-exegetical context on the one hand, and the hybridization of this time-concept in medieval iconography on the other hand.

27 November

Forster Martin

University of York

Mazocchi Mario – STAT

Department of Statistical Sciences

"Paolo Fortunati"

Bringing new medicines to market sooner? The statistical and economic challenges of value-based clinical trial design

Innovation in drug discovery is a costly and risky business: a recent estimate puts the cost of bringing one new medicine to market in the region of \$1bn, with almost half of that cost incurred in carrying out clinical trials on human subjects.

Yet, as health care expenditures grow across Europe and in the United States, rates for new drugs approved per \$1bn spent on R&D are falling. Pressure to justify the ‘value for money’ of a new medicine, in addition to its effectiveness, is driving the search for innovative approaches to clinical trial design. These require a multi-disciplinary collaboration between statisticians, economists, operations researchers and clinical trial teams. In this talk, I shall introduce our recent work on value-based clinical trial design and offer an honest and open assessment of its potential for stopping clinical trials earlier, with the aim of bringing the right medicines to market sooner. Our model for the design of a clinical trial permits researchers to learn about the cost-effectiveness of a new medicine as the trial progresses. It permits early stopping if evidence is sufficiently convincing, letting the trial run for longer if it is not. At the heart of my talk will be the challenge of taking such a model to real-world application, together with the degree to which behavioural, cultural and ethical dimensions help (and hinder) the process. The talk will be multi-disciplinary in nature and should appeal to a broad range of scholars.



DECEMBER 2018

4 December

Arroyo-Martinez Ignacio

*IMLI – International Institute of
Maritime Law of the International
Maritime Organization (IMO)*

Zunarelli Stefano –DSG

Department of Legal Studies

The Unification of Maritime Law through International Maritime Conventions

The Maritime Law needs uniformity. The main issue is how to achieve that goal.

All the nations want economic development and welfare and the international commerce is one of the main keys to meet that need. However, both national legislations and different national jurisdictions jeopardize these purposes as everyone wants to apply and be ruled its national legal system and wants that the case be heard under its own national jurisdiction, in case that the conflict arise.

Everybody wants to play the party at home! One of the tools to overcome such problems is to unify the Law of International Commerce and in particular the International Maritime Law. In other words is the issue of the Relationship between National and International Law. Kant describes it as the autproblem.

The international maritime community has approved a relevant number of international conventions (i.e, carriage of goods by sea, passenger, salvage, liens, etc.) and other international legal instruments but not all of them have been ratified by most of the nations. On the other hand, the fact of the ratification does not mean that the all the legal problems have been solved. A more relevant question come into the pay: the incorporation into de national legal system and the implementation by the Sates. The lecture will focus and deal with detail these issues and at the end students will be asked to draft a national legislation to incorporate one International Maritime Convention in force

11 December

Sanson Helena Louise

*Clare college, University of
Cambridge*

Women Language Literature in Italy. Women, Language(s) and Translation in Italy's Long Eighteenth Century

This lecture will investigate women translators' roles in the circulation of new ideas and dissemination of knowledge in 18th- and early 19th-century Italy.

Whereas women translators in England, Germany and France have been the object of scholarly works (e.g. Hosington, Brown, Wehinger, Urman, von Flotow), the topic of women translators in Italy so far has not received the scholarly attention it deserves. Research conducted across an extensive number of primary sources (often rare and hard to trace) reveals that translation was a means for women to express their scholarship, erudition, or civil engagement.

Translating also encompassed both a public and private element. Some women moved in cultivated circles, undertaking translation for political and ideological reasons; others took it up as a literary pastime; others depended on the income they received from it to make a living. Women translated works from a variety of different genres from classical and foreign languages into Italian, as well as from dialect to dialect, and from Italian into dialect. They worked on translating texts on their own, or as part of collaborative projects. Women's contribution to translation in Italy in the period in question will be investigated against the background of Italy's multilingual and multicultural context, and taking into consideration practices of and tools

Michelacci Lara – FICLIT

*Department of Classical Philology and
Italian Studies*



DECEMBER 2018

18 December

Robert Eric

Université d'Orléans

Colombo Vittorio – DIN

Department of Industrial Engineering

Non thermal plasma sources : single jet and multi jet setups and applications in medicine and decontamination

Quick overview on atmospheric pressure plasma sources Plasma jets features: reactive species, electric field, gas flow and target influence diagnostics Applications in health (cancer and cosmetics): known, requirements and perspectives Multi jet devices: development and application in decontamination.





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