GSC-2018

Gastro–Science–Chef

An international two-day symposium on science and cooking

SMAG for LIVET

HARVARD UNIVERSITY

NORDIC FOOD LAB

UNIVERSITY OF COPENHAGEN

Smag for Livet – University of Copenhagen – June 13-14, 2018

UNIVERSITY OF COPENHAGEN
DEPARTMENT OF FOOD SCIENCE

GASTRO-SCIENCE-CHEF 2018: GSC-2018

An international two-day symposium on science and cooking

June 13-14, 2018

University of Copenhagen, Frederiksberg Campus

PROGRAM

Date: June 13, 2018

Venue: University of Copenhagen, Frederiksberg Campus, Thorvaldsensvej 40, Auditorium A2-81.01

13.00-13.15 Welcome: Scope of the symposium
Pia Sörensen, Roberto Flore, and Ole G. Mouritsen

Chair: Ole G. Mouritsen

13.15-13.55 The new role of the chef in the 21st century
Anne McBride (New York) & Roberto Flore (Copenhagen)

14.00-14.40 Chefs, scientists, education: gastronomy as a teaching and learning tool
Pia Sörensen (Harvard)

14.45-15.15 Intriguing refreshments

Chair: Pia Sörensen

5.15-15.55 Social equality through taste and food
Tamas David-Barret (Oxford) & Francesco Impallomeni (Copenhagen)

16.00-16.30 Holistic Cuisine – when culinary arts extend beyond the plate
Rasmus Munk & Louise Beck Brønnum (Copenhagen)

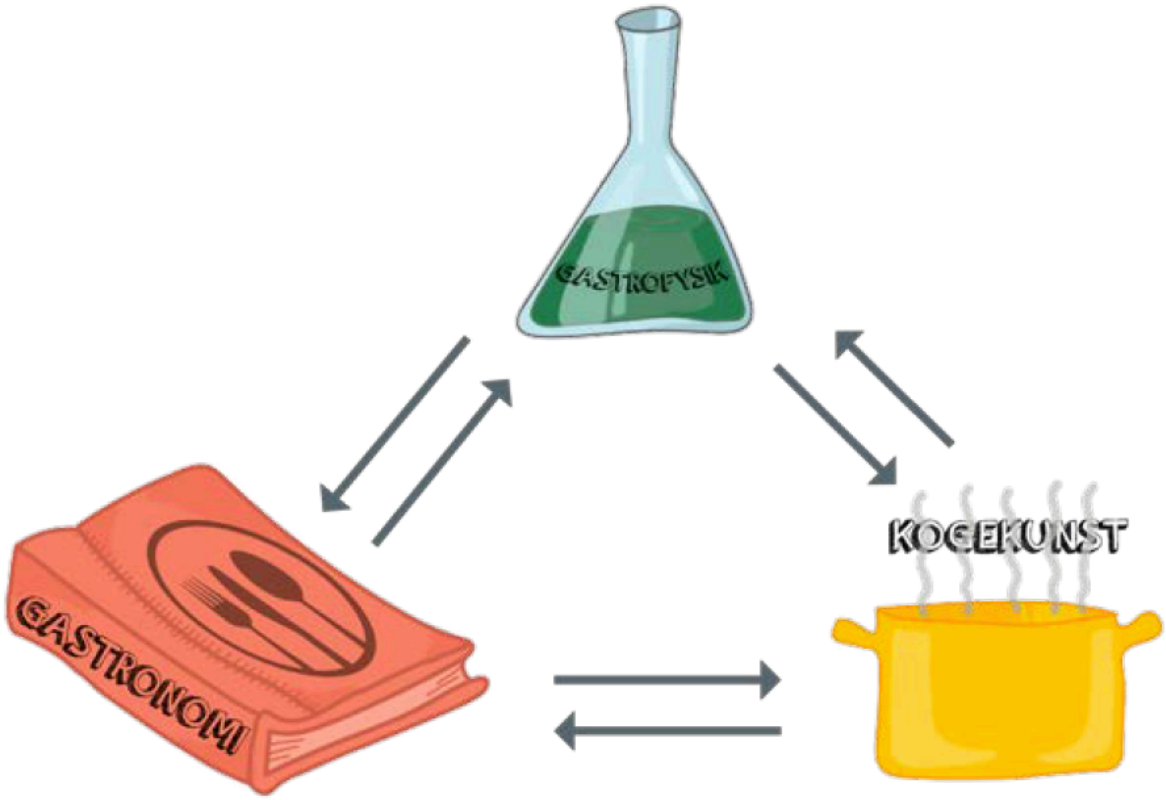
16.45-18.00 Workshops
1. Coffee roasting and tasting (Francesco Impallomeni, Nordhavn Coffee Roasters)
2. The taste of Alchemist (Rasmus Munk , Alchemist)
3. Exploring physical origins of culinary foam (Mai Nguyen & Kezi Cheng, Harvard)

18.00 End of first day

Date: June 14, 2018

Venue: University of Copenhagen, Frederiksberg Campus, Bülowsvej 17, Auditorium A1-01.01

8.30-9.00	Coffee, tea, and rolls
	Chair: Anne McBride
9.00-9.40	Teaching chefs in a gastrolab setting
	Rachel Edward-Stuart (London) & Morten Christensen (Odense)
9.45-10.10	Gastrophysics and gastronomy of squid: as case study
	Charlotte Vinther Schmidt (Copenhagen) & Peter Lionet Faxholm (Copenhagen)
10.15-10.45	Refreshments
	Chair: Michael Bom Frøst
10.45-11.25	How do gastrophysicists work?
	Jozef Youssef (London) & Mathias Porsmose Clausen (Odense)
11.30-12.10	The science of tempeh and sous-vide of meat
	Bernat Guixer (Girona) & Jorge Ruiz Carrascal (Extremadura)
12.15-12.30	Whisky – a topic for research, teaching, and outreach
	Jens Risbo (Copenhagen)
12.30-13.45	An experimental lunch
	Chair: Mikael Schneider
13.45-14.25	Soft matter physics meet the culinary arts: from polymers to jellyfish
	Thomas Vilgis (Mainz) & Mie Thorborg (Odense)
14.30-15.10	Quality science – how food can reshape the modern scientific approach
	Tommaso Sarti (Copenhagen)
15.15-15.45	Refreshments
15.45-16.25	Public understanding of science via food and taste
	Pia Sörensen (Harvard) & Ole G. Mouritsen (Copenhagen)
16.30	End of symposium



Symposium Abstracts

Transforming notions of expertise: the changing role of the chef in the 21st century

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The professional chef's field of expertise now transcends the kitchen. Chefs must opine on cultural and policy issues and take stances in their restaurants through the menu choices they make, on stage through the dishes and words they present, and on social media through the statements they make and interactions they have. Through collaborations with scientists, designers, artists, and inventors to develop new tools, techniques, and dishes, chefs also extend the depth of their knowledge and the reach of their work. At the same time, craftsmanship and the practice of cooking remain at the core of the work of the kitchen. By joining the skills of their hands and their heads, chefs can take traditions that are millennia old, such as bread making, and find new ways to convey heritage and tradition, suited to a 21st century mind and a 21st century audience. In this presentation, I will discuss the notion of expertise in professional cooking (building on the works of Collins, Evans, Becker, and Sennett, among others), how chefs go about acquiring it and who contributes to the expertise-making process, how that acquisition process has evolved over the last thirty years, how trust and expertise relate, and how expertise is disseminated and shared with both peers and public.

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Vision from the kitchen: the future of interactions between chefs and scientists

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A greater number of people are becoming aware of how the sustainable management, promotion and consumption of food resources can affect the lives of millions of people. Over the past few decades, chefs have gained an important place in society by contributing to this awareness. Chefs have also been recognized as collectors and promoters of unique know-how and traditions from a spectrum of voices of people involved in food production systems. Recently, we have seen chefs and scientists breaking down the walls between science and gastronomy, giving rise to a new kind of professional profile that still lacks a proper title. Academic institutions can be frontrunners in promoting the development of these 'hybrid' chefs. As the gastronomic field continues to evolve, there are doors opening for chefs to engage with scientists. Furthermore, restaurants can present new opportunities where scientists can apply and exchange knowledge. This presentation will draw on my personal experience working as a chef inside and outside of the world of science and gastronomy.

Chefs, scientists, education: gastronomy as a teaching and learning tool

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The Science and Cooking Program at Harvard is a wide ranging, interdisciplinary venture that aims to use food and cooking as a way to teach basic chemistry, physics, and biology.

The program was launched in 2010 with the general education course Science and Cooking: From Haute Cuisine to Soft Matter Science which is a collaboration between chefs and scientists1, 2, 3. Since then the program has expanded and now includes a wide range of initiatives: further courses in related sciences, a public lecture series4, an online course with 260,000 enrollees5, 6, 7, a YouTube/iTunes series with 4 million views8, initiatives to teach humanities and arts with food, and educational programs from pre-school to high school9.

This presentation discusses the program including examples of curricular topics, student exercises, and student projects. I aim to illustrate how combining two very different fields, science and gastronomy, presents fertile ground for student learning and innovation in diverse pedagogical settings.

In the workshop that follows this presentation participants get a chance to experience some of the hands-on activities in the course.

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Social equality through taste and food: altruistic giving norm signals the presence of a community

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In social living primate societies a common pattern of stratification dynamics exists: merit recognition leads to social stratification and elite-delineation. While merit recognition improves the efficiency of collective action, stratification and the appearance of an elite are detrimental. This is true for non-human primates, as well as human societies. Therefore all successful human cultures must have found a way to allow social merit to emerge, but at the same time limiting the level of stratification and elite delineation. The Inequality Regulating Institutions Project catalogues the solutions to this problem.
Social inequality is multi-dimensional, constructed of embodied, network, and physical forms of capital. These all have different inheritance mechanisms. Cross dimensional tradeoffs are the general rule: it is tricky to reduce inequality in resources and not increase that of status (e.g., poverty shaming, recipient stigma). Some institutions regulating inequality solve this by combining redistribution with community bonding.

Multi-dimensional inequality regulation permeates all human cultures: humans are universally predisposed to build inequality regulating institutions around them, and all cultures integrate inequality regulation with a wide range of community bonding mechanisms. There are three genetically inherited mechanisms that regulates social inequality in humans: sensitivity to position of self, 3rd party intervention, and self-limitation when in dominant position.
Human communities are defined by shared altruistic giving ritual. The presence of these giving norm signals the presence of a community. In these, the ritualized giving practice serves as an inequality regulating institution, especially efficient when combined with community bonding activities, among which communal eating takes primary role.

Coffee and inequality in global food systems

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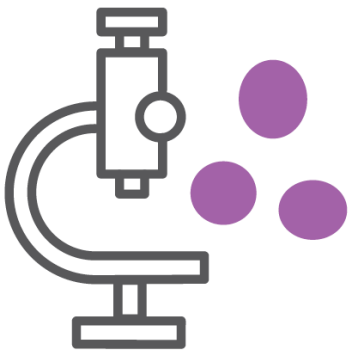
Few value chains can explain better than coffee how inequality is entrenched in global food systems. Persisting gaps between farm-gate price and price to the end consumer signal the uneven distribution of profits across the value chain. The downstream (roasters and cafes) still capture the lion share of the value leaving the upstream (the coffee growers) with a morsel of the final price.

Recent developments in the specialty coffee industry (in different fields such as microbiology, food science, design of machinery and equipment, social sciences) have increased the role that the different actors might play across the supply chain. I will argue that this has the potential of reversing the unbalances which have historically been entrenched in the coffee market. Consumers are more and more aware of the implications of their daily choices on the livelihoods of millions of growers in the global South. Producers became more aware of their means as entrepreneurs and not mere suppliers of raw materials or semi-finished agricultural products. Processors feel themselves entitled today more than ever, to bridge the gap between the first and the seconds by let the information flowing from crop to cup and the other way around.

My concern, as coffee professional with a background in social sciences, is to understand how far these developments can bring the industry as a whole. How likely they can fill the persisting price gaps. What perils are hidden behind some of the most common trends in the so called social or ethical marketing discourse (i.e., "fair" and "direct trade").



Holistic Cuisine – a cuisine as obvious as it is necessary

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Acknowledged by many in the literature (Rozin and Tuorilla 1993; Meiselman 2008; Spencer and Piqueras-Fiszman 2014; Muñoz et al. 2018), a dining experience embedded in a cuisine not only encompasses what happens on the plate (Meiselman 2008). It also includes factors such as the room, management control system and the atmosphere. All of which highly influence the guest's experience when dining at a restaurant (Edwardson & Gustafson 2008). To our understanding, no restaurant has articulated a cuisine that takes all these elements of a meal into consideration to create a multilayered dining experience (Meiselman 2008; Spencer and Piqueras-Fiszman 2014). On this ground Holistic Cuisine was conceived and formulated by Danish Chef and Restaurateur Rasmus Munk during Spring 2018.

Alchemist was founded by the chef and restaurateur Rasmus Munk in 2015. When dining at Alchemist you must expect the unexpected. With a holistic approach, Alchemist sets out on a culinary journey that takes you far beyond the plate and touches upon all aspects of a meal. Recently, finishing the first chapter in the tale of Alchemist, we now embark on chapter two by creating thought-provoking, aesthetical, emotional and gastrophysical meal experiences. Chapter two also created a need of putting word to Rasmus Munks own approach cultivated at Alchemist for the past two years that extends further than techniques, (food) culture and traditions.

One of the initiatives at Alchemist is the Alchemist T[A]este kitchen1 spearheaded by a gastro-physicist. The aim of the T[A]este Kitchen is to cultivate, collect and understand the tangible and intangible factors that together make up the entire meal (Meiselman 2008; Edwardson and Gustafson 2008) through cooperation between various disciplines. The restaurant is the scene from where the orchestra of disciplines, creativity and passion, the T[A]este kitchen, composes the holisitc meal experience, conducted by Rasmus Munk.

The presentation includes a thorough introduction to Holistic Cuisine and the context in which it was formulated. Furthermore, Rasmus Munk and gastrophysicist Louise Beck Brønnum discuss the relevance of introducing a new cuisine in a time where cuisines are not scarce. Finally, the presentation includes examples of interdisciplinary collaborations through the T[A]este kitchen, which aim at creating dining experiences that extend beyond the plate.

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[1] *The name T[A]este refers to "taste" and its many meanings within different disciplines such as physiology, sociology and philosophy.*

Teaching chefs in a gastrolab setting

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People have been cooking and preparing food for centuries, and for many years, the traditional pathway for an aspiring chef was through an apprenticeship in a restaurant. In the last hundred years or so, culinary schools have become a more common route for training, and provide a place for chefs to attain the basic knowledge of traditional food preparation methods and techniques that allows them to achieve the required skills and knowledge to be successful in their craft. Food Science has not traditionally been taught in these institutions, and this discipline has always been one reserved to mainstream University degrees.

Since the beginning of Molecular Gastronomy as a scientific discipline in 1989 [Kurti N. & This, H; 1994], it has become increasingly obvious that knowledge of the basic science of cooking can be very important to chefs (although many individuals and institutions are moving away from the term Molecular Gastronomy, favoring instead Culinary Science or Gastrophysics). While food science as a discipline has been around for many years, the teaching of science in a culinary environment is a relatively new concept, and one that needs to be adapted from the traditional teaching and learning methods in order to make it suitable for the skills-set and knowledge of these learners. The content and approach to this method has not yet been standardized, and it appears that it is approached differently depending on the national setting.

In this talk, we introduce two facilities where food science, or culinary science as it is called, and gastrophysics is being disseminated to chefs – both at a culinary school (Westminster Kingsway College, London, England) and a in a university setting (Gastrolab, Odense, Denmark). We will discuss as part of this talk how teaching is delivered in these two settings, as well as outlining both the potential benefits of this new discipline as well as the limitations and challenges.

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Gastrophysics and gastronomy of squid: as a case study

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Nowadays, Scandinavian consumers are getting more aware of sustainability and the necessity of seeking alternative sources of protein from that originating from domesticated land animals. Such alternatives have in the most recent years been suggested to be insects, processed plant foods, etc. These foods may, however, require too extensive processing, and may each possess obstacles in "willingness to try" or include anti-nutrients (i.e. phytochemicals) affecting the bioavailability of the proteins, respectively. Instead, we propose to explore existing marine protein sources which are currently under-utilized commercially wise.

In Scandinavia, there has not been tradition to exploit marine sources of protein to the same extent as in Asia, where it is normal to use everything from seaweed to jellyfish and cephalopods as everyday foodstuffs. Cephalopods especially may be an interesting and sustainable suggestion for the Scandinavian consumers to adopt as part of the New Nordic Diet. Cephalopods have a high protein, low fat profile and may contain high amounts of umami specific compounds (Mouritsen & Styrbæk, 2018). Another advantage of cephalopods is their short generation time yielding a superior ability to adapt to new habitats and adjust to changes in climate. Notably, many commercially available fish species are in decline, whereas cephalopod populations are increasing worldwide (Monahan, 2016; Arkhipkin, 2016). Their relatively short life cycle furthermore makes them attractive as they accumulate lower levels of health affecting heavy metals, which is prevalent in some popular consumed fish species such as swordfish (X. gladius) and king mackerel (S. cavalla), containing high levels of mercury (FDA, 2004).

Through this case study, we will seek to uncover possible initiatives to get people in Scandinavia, exemplified here by Danish consumers, to eat more squids. Squids as food for this target group is often limited to a fried and battered, often unhealthy fast food product, inexperiently prepared as tough and rubbery. A lack of knowledge of how to prepare this raw material to obtain good eating quality, has been identified as the main challenge to getting this consumer base to eat more squids. Therefore, a gastrophysical approach was used to investigate how we can optimize taste and texture of the most commercially available squids on the Danish market (L. forbesii and L. vulgaris) and as an output, create a variety of easy-to-follow guidelines and recipes. As there are different approaches using different channels to introduce new raw materials to consumers, the different recipes have been developed to suit multiple channels, ranging from restaurants to retail stores, while also accommodating for both large-scale industrial production and home use by the end-consumer as an everyday diet option. Some of the results of the work have also been included in teaching material for schools; popular science articles (Schmidt et al., 2018) and books (Mouritsen & Styrbæk, 2018).

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How do gastrophysicists work?

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The interaction between food and the human senses is at the core of eating. Nevertheless, while eating is among the most multisensory of all experiences, involving all of the five human senses: sight, smell, touch, taste and sound, traditional food research have largely ignored the importance of the relation between the physical and chemical state of food and its sensory perception. As a result, the scientific understanding of how food stimulates the human senses when eating is limited and a new approach to this central theme is necessary.

Recently, the interdisciplinary scientific field of gastrophysics has emerged (Mouritsen 2016). With gastronomy as its inspiration, gastrophysics focuses on gaining fundamental scientific insight to phenomena related to cooking and eating. This includes unraveling what happens in the food during cooking, the sensory evaluation of food, and the mutual relation between the food and the senses. (Christensen et al., 2017). The topics of gastrophysics is of interest to not only the scientific community, but also kitchen professionals, and gastrophysics offers a platform stimulating the interaction between scientists and chefs.

In this presentation, we will give examples of how gastrophysical knowledge can be applied to dishes on the dining table, and how preparations from the kitchen becomes a subject of study in the laboratory. In particular, we will focus on food texture, as the importance of food texture is underappreciated in most Western cuisines, and scientific knowledge of the topic could pave the way for exploring new textures (Pedersen & Clausen, 2017). We will present how advanced optical microscopy can be key to understanding the nature of food texture (Christensen et al., 2015), and how not only food texture, but also the texture of tableware affects the sensory perception of the food. Further, we discuss the potential to invoke positive change in public health through multi-disciplinary collaborations between scientists and chefs.

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Tempeto and its derivatives – a case example on how two research environments enabled and determined the development of a gastronomic research project

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The increasing interaction between chefs and scientists has generated a new research environment. Lately, some gastronomic restaurants, such as El Celler de Can Roca in Girona, considered the inclusion of scientific profiles on their crews to team chefs and complement their skills to develop novel ingredients and techniques. This research initially pops up on their menus but eventually impact other layers of food consumption in our society.

Furthermore, fermentation is an ancient technology that lately strongly re-emerged as a source of surprising and delicious flavors being an outstanding tool for chefs in the kitchen.

Here, we present a case example of gastronomic research based on fermentation. We will discuss how the nature of the research environments influenced the development and the outputs of the project. Also, the developed products will be reviewed.

Initially developed in the Nordic Food Lab in Copenhagen (Denmark), tempeto was described as a novel product derived from white beans tempe through the joint actions of traditional tempe fermentation using starter cultures of Rhizoups spp. followed by prolonged sous vide-cooking in the temperature range of 45-55°C (Guixer et al., 2017).

A second round of development has been performed at El Celler de Can Roca in Girona (Spain). The follow up of the rationale behind tempeto production process allowed the development of an array of related products, generating a new family of bean-fermented products that gastronomically enriched the potential of the tempeto concept.

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The science sous-vide of meat

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Sous-vide cooking was initially developed for catering, and years before it became a must in kitchens of most trendy restaurants. In the XXI century, it is spreading to millions of kitchens worldwide through the use of dozens of small tools developed for controlling cooking temperature (Roca, 2003). Those have enabled any foodie to reach the deliciousness of perfectly cooked meats. Because even though sous-vide has been applied to many different foodstuffs, it is its use for meats that has popularized this method worldwide (Ruiz et al., 2013). It is perhaps the degree of tenderness achieved when cooking traditionally tough meat cuts which has made this method unanimously acclaimed. This effects relies upon the use of very specific combinations of very long cooking times at quite low temperatures (as compared to traditional methods), which has become to be known as LTLT (long time, low temperature) (Sánchez del Pulgar et al., 2012). Some researchers claim that this LTLT conditions also boosts the activity of proteolytic enzymes in meat, giving rise to the release of free amino acids (Clausen et al., 2018) and leading to further improvement of tenderness (Dominguez-Hernandez et al., 2018).

It is worth mentioning that some chefs used and advised using time-temperatures conditions that may result in food safety issues. Luckily, during the last few years, a more extensive knowledge of the microbial lethality at this border for safe temperatures has been gained, which has allowed establishing more clear red lines in terms of safe time-temperature combinations (Stringer and Metris, 2017).

Cooking meats sous-vide has some drawbacks though, and perhaps the main one is the lack of extensive Maillard reactions on the surface of meats cooked under LTLT conditions (Roldan et al., 2015). Due to that, chefs very frequently roast or fry the surface of sous-vide cooked meats, achieving the formation of this delicious maillardized crust. But whether this should be carried out before or after the sous-vide treatment is still a matter of debate.

During the last few years, a deeper knowledge on the chemical, biochemical and microbiological changes taking place during sous-vide cooking of meats has been achieved, giving rise to a number of publications. However, chefs are still ahead in their empirical knowledge on the use of this technique.

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Whisky – a topic for research, teaching, and outreach

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It is my experience that research, science, teaching and outreach go beautifully hand in hand for the food scientist. Everyone can (and should) relate to food and beverages. The topic of food and drinks touches many scientific disciplines and that is a good starting point for laymen and students to develop an interest in science. Food and alcoholic beverages often creates passionate feelings which helps the food scientist to maintain the passion for science during tough times. In my talk, I will use whisky and a few drops of water as starting point for a small journey that will take you to unexpected regions of science, including the limitations of science itself.

Soft matter physics meet the culinary arts: from polymers to jellyfish

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Soft matter physics provides a number of fundamental concepts in the understanding of foods, which have been often ignored in food technology (Vilgis, 2010; Vilgis, 2015a). Mouthfeeling, texture, taste and aroma release is based on elementary physics and chemistry (Vilgis, 2013, Vilgis 2014). For many food types gels provide simple model systems (Russ et al, 2013; Vilgis, 2015b). Indeed a large variety of problems have been treated in classical (organic) gels in polymer physics and many attention has been drawn on competing interactions (Migliorini et al. 2001), such as good and poor solvent (de Gennes 1979), polyelectrolytes (Vilgis et al. 2000), complex formation in amphiphilic systems (Vilgis and Haronska, 1994). Many of these ideas are relevant for food systems, since the structure formation in foods are driven by competing interactions.

Jellyfish are perfect examples of a “living gels” composed of various structural proteins, such as collagen and elastin, but also water soluble, globular and amphiphilic mucoproteins and polar polysaccharides, which contribute with very distinguished competing interactions to the gel properties and their impact on conservation procedures and preparation of jellyfish into food. The traditional method for preparing jellyfish as food uses mixtures of different valent salts which introduce pH-changes, charge screening and ionic binding interactions in proteins, which create a crunchy texture of jellyfish (Hsieh 2001). A new preparation method use the addition of ethanol (and other even less polar solvents) that introduce collapse transitions of polar polysaccharides and change the conformations of proteins via selective interactions between hydrophilic and hydrophobic amino acids in the proteins, which result finally in texture changes and mouthfeel after solvent evaporation (Pedersen et al. 2017). In this talk we will develop a general, molecular picture, which turns out to be quite general and follow universal properties.

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Quality Science: how the taste of food can reshape modern society

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The University of Gastronomic Sciences is a research and education institution, founded in 2004 by the non-profit organization “Slow Food” with the goal of inquiring the scientific and humanistic knowledge within the fields of science, culture, politics, economics and ecology of food. It also investigate toward sustainability, protecting biodiversity and building a network that involves science, agriculture and gastronomy. During the presentation I will try to analyze the relation between food and its relevance in understanding new ways of shaping healthier societies. I will also try to recognize some elements of imbalance within the scientific way of understanding humans and their environment, so underlining the importance of integrating knowledge from different fields. It is becoming clear how understanding the taste of foods and its consequences necessarily requires a complex approach involving both traditional and innovation stakeholders. Food being such a basic, fundamental element of life it is therefore possible to elect it as a cornerstone of a very desirable cultural revolution.

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Public understanding of science via food and taste: the case of gastrophysics

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The research and communication center *Smag for Livet* (*Taste for Life*) is funded by a Danish private foundation, Nordea-fonden, for the period 2014-2021 with the aim of communicating knowledge about taste to the general public, in particular children and young people (www.smagforlivet.dk). Working with a range of stake holders and across different disciplines, from anthropology, humanistic sciences, and didactics, to sensory and natural sciences, the broad area of gastrophysics positions itself center stage as both a model for research-driven communication of science via food and taste as well as a platform for communication-driven research in the natural sciences such as physics, chemistry, and biology (Mouritsen, 2017). Some of the results of the work include teaching material for schools, popular science articles and books, as well as publications in the scientific literature. In my presentation I will demonstrate how this works by using a number of different examples from gastrophysics (with reference to both popular and scientific pieces of work): seaweeds (Mouritsen, 2013; Mouritsen et al., 2018), umami (Khandelia & Mouritsen, 2012; Mouritsen & Khandelia, 2012; Mouritsen & Styrbæk, 2014); emulsions (Christensen et al., 2015), mouthfeel (Mouritsen, 2016; Mouritsen & Styrbæk, 2017a), chemesthesis and chili (Duelund & Mouritsen, 2017; Duelund et al., 2017), vegetables (Mouritsen & Styrbæk, 2017b; Mouritsen, 2018), and cephalopods (Mouritsen & Styrbæk, 2018a; 2018b; Smith et al., 2018).

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Public understanding of science via food and taste

Pia Sörensen & Ole G. Mouritsen

The second part of this talk will be a summary of the main ideas of the symposium, and an exploration of how symposia like Gastro-Science-Chef can lead to new ideas for how to engage the public and increase its understanding for science and gastronomy. The discussion will be informed by other similar endeavors in this area, as well as the presentations in the symposium and input from the participants. We hope to highlight how this symposium can be used as a stepping stone for future, collaborative work.

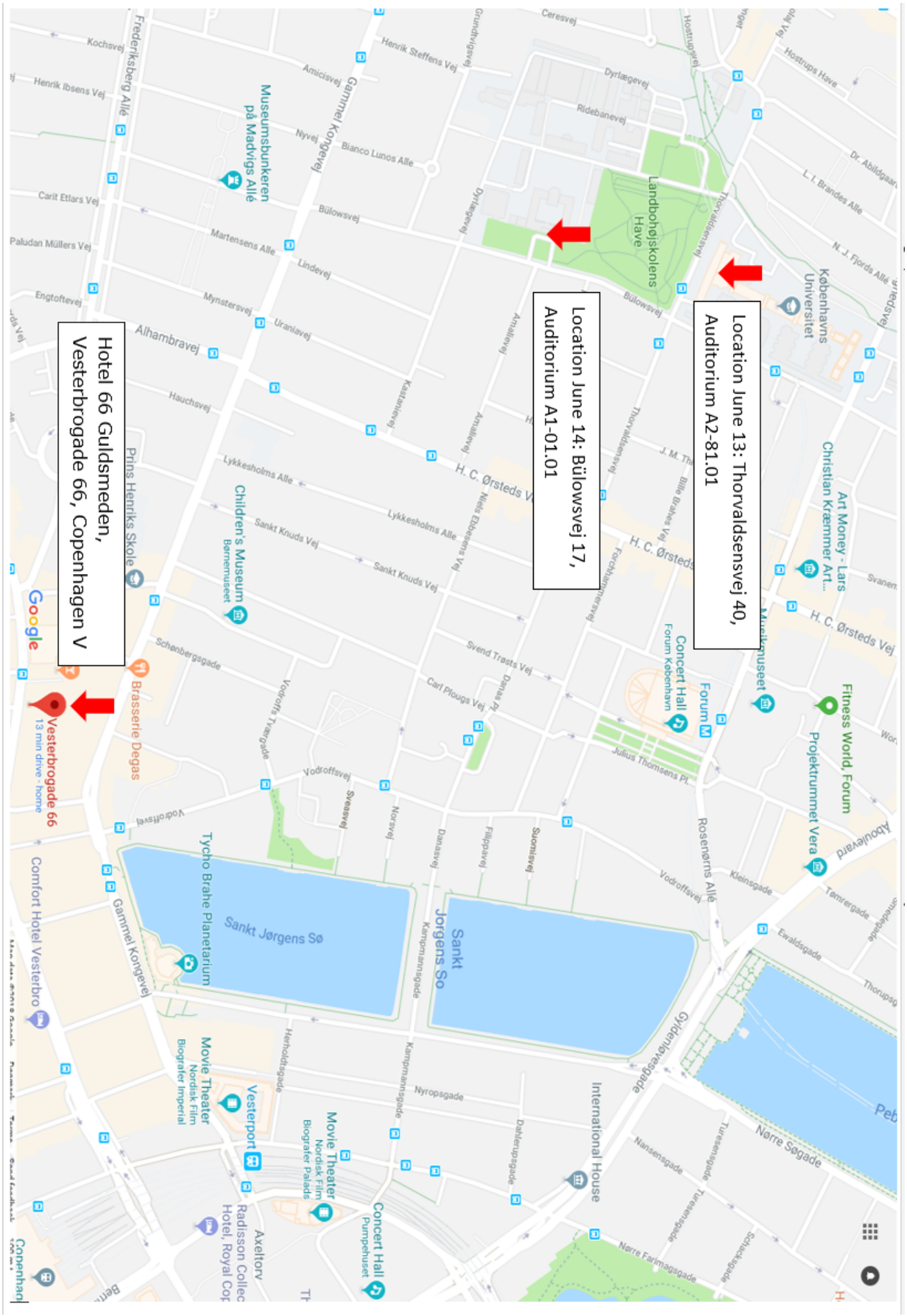
The symposium is sponsored by the Danish national research and communication center *Taste for Life* (*Smag for Livet*), see www.taste-for-life.org, supported by Nordea-fonden.

Taste for Life is a center without walls established in order to foster an interdisciplinary, collaborative project with a focus on the flavor of food as a driving force for learning, education, food literacy, and good practice. The overall mission of the center is to create a basis for a better and richer life for the Danish population. By engaging with a special team of researchers, educators, and practitioners, the center both generates new knowledge and utilizes existing knowledge in a close, collaborative effort spanning different disciplines, and working across the country with the concerted aim of seeking out taste as one of the keys for a better life.

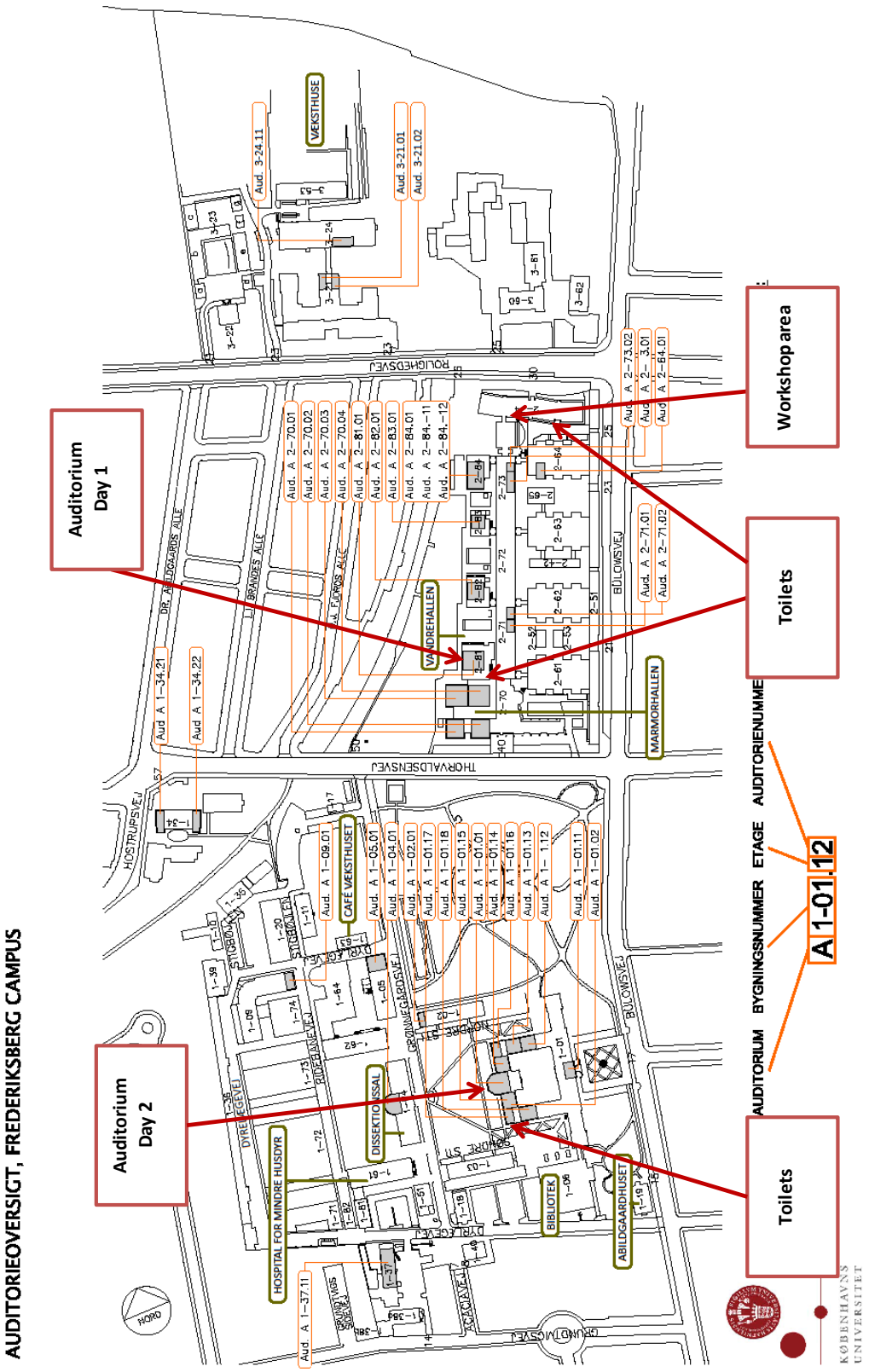
The center deals with taste experiences and acquisition of the knowledge and skills relevant to taste literacy and taste competence; implementation of sensory knowledge and cooking experience in producing positive taste experiences; use of taste as a theme for integrating different scientific disciplines; and taste as a key theme in food innovation and the development of new food preparation techniques. By integrating taste, learning, didactics and communication, the project focuses on three main areas: sensory sciences and didactics; gastrophysics and the integration of scientific disciplines; and innovation and honing of culinary skills.

The various levels of action across these different areas involve raw materials and processes, research and development, cooking and gastronomy, testing and practice, as well as public outreach. The primary target group of the project is children and young people, as well as those who teach and educate them. In addition, the results of the project are being made publicly available and communicated to the general public using a wide range of means, including the website www.smagforlivet.dk**.**

Map of Copenhagen and University Campus Frederiksberg



Map of University Campus Frederiksberg, including location of auditoria



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