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## FOOD MEETS SCIENCE 2019

An international symposium on science and cooking

September 23, 2019

Antiga Fàbrica Estrella Damm, Rosselló 515, 08025 Barcelona, Spain

### PROGRAMM

#### **10:00 - Welcome**

The Best Chef and Estrella Damm

#### **10:00 - 10:20 Estrella Damm, the beer of Barcelona by the Estrella Damm Brewmaster**

#### **10:20 - 12:10 Presentations (part I)**

10:20 - 10:50 Touching culinary science

Joan Roca (El Celler De Can Roca, Spain)

10:50- 11:20 The Essence of D'O

Davide Oldani (D'O, Italy)

11:20 - 11:50 You eat with your brain

dr Paul Smeets (University Medical Center Utrecht, Wageningen University, The Netherlands)

#### **11:50 - 12:15 Short break**



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## **12:15 - 13:45 Presentations (part II)**

12:15- 12:45 Gastrophysics: The new science of eating  
prof. Charles Spence (Oxford University, UK)

12:45- 13:15 Nature meets Science  
Wojciech Modest Amaro (Atelier Amaro, Poland)

13:15- 13:45 Sensory Perception and Deception  
Grant Achatz (Alinea Restaurant, USA)

## **13:45 - 15:00 Lunch**

## **15:00 - 16:30 Presentations (part III)**

15:00 - 15:30 Food preferences and genes - not just a matter of taste  
dr Nicola Pirastu (University of Edinburgh, UK)

15:30 - 16:00 Multisensory experience – food  
Pia Leon (Kjolle, Peru)

16:00 - 16:30 Russian Revolution  
Vladimir Mukhin (White Rabbit, Russia)

## **16:30 - 17:00 Estrella Damm farewell beer**



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## Gastrophysics: The new science of eating



### prof. Charles Spence

Head of the Crossmodal Research Laboratory  
Oxford University, UK

Gastrophysics, the new science of eating, focuses attention on ‘the everything else’ apart from the food that nevertheless still influences the tasting experience, be it in the high-end restaurant or the home: Everything from the colour of the plate on which the food is served, through the weight of the cutlery that is used to consume it (assuming that there is any, which can’t always be guaranteed these days), not to mention the music that happens to be playing in the background.

Gastrophysics aims to bring the scientific approach, inspired by the latest neuroscience insights concerning the multisensory integration of the cues from taste, smell, touch, sight and sound, together with the best in culinary artistry, in order to help design more engaging, more enjoyable, and more memorable experiences for diners in the future.

Spence, C. (2017). *Gastrophysics: The new science of eating*. London, UK: Penguin; Winner of the 2019 Le Grand Prix de la Culture Gastronomique from Académie Internationale de la Gastronomie.

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**Professor Charles Spence** is a prize-winning experimental psychologist who researches the factors that influence what we choose to eat and what we think about the experience with the likes of world-leading chefs. His focus is on applying the latest insights concerning the multisensory nature of perception to everyday life. He is the author of the 2014, Prose prize-winning “The perfect meal” with Betina Piqueras-Fiszman, the international bestseller “Gastrophysics: The new science of eating” (2017; Penguin Viking) – winner of the 2019 Le Grand Prix de la Culture Gastronomique from Académie Internationale de la Gastronomie, and Multisensory Packaging Design (2019; Palgrave MacMillan). He is a regular on TV and Radio, and has been profiled by The New Yorker.



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## Touching culinary science



### Joan Roca

El Celler de Can Roca  
Girona, Spain

El Celler de Can Roca has led a dialogue amongst cuisine and science since their very beginnings. Never the less, culinary processes are both physical and chemical, and in the first years, the focus understood what was going on when we cook in order to excel in technique. But once this was achieved, the dialogue with science aimed to inspire innovative ways to tell stories with the dishes, or finding new techniques for cooking. Joan Roca will highlight all the richness that this scientific exchange has added to El Celler de Can Roca cuisine development, as well as the three Roca brothers incursions in the scientific field to inspire their creations in balanced harmony with authentic flavours, their roots and their philosophy. Sensory science is also part of this exchange.

Chef Joan Roca and his brothers have been embarked in the most innovative projects in this field since 2013. The first multisensory opera ever performed, collaborations with research teams in this field, or the new course on Sensory Science and Creativity they will host this fall, are some of the examples he will share with the audience. "Research has been a way to explore new paths in order to bring emotions and memories to our guests, that's our final goal".

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**Joan Roca** i Fontané is a chef of the restaurant El Celler de Can Roca. He studied in Escola d'Hosteleria de Girona, where later he became a teacher. He worked with his grandparents and parents in their family business, a restaurant of traditional Catalan cuisine. Today Joan is the chef of his own restaurant, together with his two brothers: Josep (sommelier), and Jordi (pastry chef). He is elaborating traditional cuisine together with avant-garde techniques, which implies research of both modern techniques and traditional recipes. Some of the techniques he uses are Sous-vide, "Perfume-cooking" and Distillation. Joan Roca reveres tradition but is not encumbered by it in his cooking. His dishes succeed because of his careful attention to balance, creating plates that contain sweet, savory, sour and salty notes, all in harmony. He's also not afraid to embrace modern technology.



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## The Essence of D'O



**Davide Oldani**

D'O

San Pietro all'Olmo, Milano, Italy

I grew up in a Great Cuisine, who had its roots in good, where I found respect for food and ingredients, subsequently for those who take care of it. Fifteen years ago I designed a “home”, where eating is always a pleasure, never an excess or waste, following the seasons, and the certainty that all fruit reaches its maximum quality at a certain time of year, with more flavor and aroma. Quality of ingredients is the basis of good and haute cuisine, with light and healthy dishes that don't sacrifice on flavor, perfectly balanced through the contrast of sweet and salty, hot and cold, soft and crispy. From the organization of the restaurant to the relations with my kitchen brigade, I've been doing everything under the heading of “years of passion”. Passion is a word, and like all words, if you don't put it into practice, it's an empty shell.

To create dishes in harmony for the palate, you have to harmonize, to unify, to balance all the ingredients, mix them not only with your hands, but blend them with your heart before offering them to others.

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**Davide Oldani**, the creator of Cucina POP - high quality and accessibility - opened his restaurant D'O, in 2003, in his hometown of Cornaredo, near Milan. One year after opening, the world's most authoritative food guides counted him amongst the greatest chefs of contemporary Italian cuisine. Prior to opening D'O, he worked with Gualtiero Marchesi, Albert Roux, Alain Ducasse and Pierre Hermé.

May 2014 saw the opening of Davide Oldani Cafè - in the new luxury Piazza at Malpensa Airport, Milan. From September to November 2013 he conducted the first season of the program, The Chef, on channel La5. For the past 16 years, Davide Oldani has collaborated with the authoritative culinary magazine, La Cucina Italiana, and writes a weekly column about sport and Cucina POP for the magazine Sport Week.

In 2016 he inaugurated a restaurant in Manila, and opened his new D'O at Cornaredo\*, an evolution of the previous one.



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## You eat with your brain



### Dr. Paul Smeets

Division of Human Nutrition and Health, Wageningen University  
UMC Utrecht Brain Center, University Medical Center Utrecht  
Utrecht, The Netherlands

What governs your eating behavior (and that of your guests)? Myriad factors affect our eating-related decisions on what, when and how much to eat. These decisions are made in the brain based on internal and external signals related to for example hunger state, stomach filling, hedonics, health considerations and price. Subsequently, input from all our senses combines with internal signals like stretching of the stomach and our cognitions and beliefs to produce food anticipation and associated physiological and neural responses. This continues during consumption to create a particular eating experience. The complexity of these processes provides numerous ways of influencing food choices, food anticipation and the consumption experience.

I will illustrate this by cherry-picking several factors that can influence our food choices, eating experiences and associated brain responses.

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**Dr. Paul Smeets** is senior scientist at the Division of Human Nutrition and Health of Wageningen University and Associate professor at the University Medical Center Utrecht Brain Center, Utrecht University, The Netherlands. He trained in Behavioral Biology at Utrecht University after which he started his career in food-related (neuro)imaging at the Image Sciences Institute (UMC Utrecht) where he investigated whether biomarkers of satiety could be established in the human brain using functional MRI. After that, he engaged in more and more multi-disciplinary projects that involved food-related neuroimaging, and in the past 5 years also MRI of stomach emptying and digestion. A central theme in his research is the decision to eat, which is taken in the brain on the basis of multiple neural as well as hormonal signals. His broad research interests include the neural correlates of taste, satiety and (un)healthy food choice, eating disorders.



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## Nature meets Science



### Wojciech Modest Amaro

Atelier Amaro  
Warsaw, Poland

Our planet consists of a multiple diverse ecosystems that are currently vulnerable to collapse. Biodiversity is the thing that makes one ecosystem strong and another weak in the face of change, it ensures ecosystem resilience, giving ecological communities the scope they need to withstand stress. Today, humans are relying on significantly fewer varieties of plants and animals to produce food, causing homogenization of farming systems.

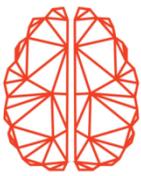
We are producing more food than ever, but land degradation due to overharvesting and soil exploitation is already harming agricultural productivity in 23 percent of our planet's land area.

Farmers play a key role as custodians of agricultural biodiversity. This is why local and traditional knowledge and culture are considered as integral parts of agricultural biodiversity management.

So the bonding of science and gastronomy should be the objective of chefs as it is the ultimate array of modern and traditional thinking. In order to preserve biodiversity they must combine their efforts to restore forgotten varieties of plants. To restore a natural habitat they need to use knowledge. Science – it is a knowledge obtained through study or practice.

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**Wojciech Modest Amaro**, in his professional career, he spent many years of working abroad in some of the world's best restaurants and came across such amazing Chefs like Ferran Adria something he recalls as "the most influential experience in my work". Amaro strongly believes he is only a recipient of God's will and talents and it allows him to create a cuisine based on natural rhythm of nature and its biodiversity. In 2013 his atelier Amaro was awarded a Michelin Star – first in the history of Poland. His unique style of Cooking, pioneering vision on contemporary Polish cuisine has won him International recognition and many prestigious awards. He is the author of bestseller "Polish Cuisine of XXI century" and "Nature of Polish Cuisine" cookbooks. He is also the Head Judge in the most popular TV Series Top Chef Poland. He is the Founder of Forgotten Fields Foundation – an organization dedicated to searching for forgotten areas, recipes and craftsmen in culinary fields.



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## Multisensory experience - food



### Pia Leon

Kjolle

Barranco, Peru

The interaction between food and the human senses is the crucial thing. Nevertheless, while eating is among the most multisensory of all experiences, involving all of the five human senses: sight, smell, touch, taste and sound.

It gets harder to surprise people with new things.

We need to think of innovative ways to build experiences so that they may never feel like a previous one or like another one that may come in the future. It should be unique.

Technology plays an important role. It could be a connection channel and ironically the thing that isolates us the most. Food should always get us closer, and experiences should always be surprising so that you never forget them.

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**Pia Leon** is a young chef born in Lima, Perú on December 7th 1986. She was graduated from Le Cordon Bleu Lima and began her career back in 2009 when she joined as a member of the kitchen staff in Central. Through her unique ability and determination, she became head kitchen Chef and, alongside her husband Virgilio Martinez, Pia was a key in establishing Central as the gold star for both Peruvian and global gastronomic standards. Together, Pia and Virgilio have also created and developed other gastronomical concepts, such as Mayo Bar in Lima, Perú and the Interpretation Center in Mil in Moray Cusco. Today, however, Pia is embarking on her first independent project, Kjolle. Although in line with the philosophy of Central, Pia highlights biodiversity in a unique way, marking a new beginning with a broader outlook and wider space to create.



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## Food preferences and genes - not just a matter of taste



### Dr. Nicola Pirastu

Usher Institute, the University of Edinburgh  
Edinburgh, UK

Nutrition is one of the most basic and important processes existing as it provides us the energy to live. It is thus unsurprising that it affects deeply not only our health status, but represents a great part of our way of life and culture. Food preferences in particular are the first factor influencing food choice and have been repeatedly shown to be determined by the influence of our genes. Despite these evidences and its importance food preferences genetics has been mostly relegated to studies focusing on taste or olfaction with limited results.

During my presentation, I will explain starting from the biological and evolutionary role of food preferences, how genetics is helping us improve our understating of this complex process. I will thus present the results of the studies we are conducting aimed at understating which genes are responsible for our food choices and preferences and how these are changing the way we think about feeding.

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**Dr. Nicola Pirastu** got his degree in Biology in Cagliari Sardinia where he has also got his PhD in the genetic determinants of Baldness. His research has been focused in understanding the genetic constituents of complex traits. After moving to Trieste for his Post-Doc he got involved in the genetics of Taste, Food preference and food choice which has become his main research interest. He is now a Chacellor's Fellow at the Usher institute of the University of Edinburgh where he is working on different projects spanning ranging from genome-wide association studies to causal inference. In particular he has been focusing on understanding the genetic bases of food preferences and consumption in order to exploit them to uncover the causal relationships between health and nutrition to better inform and drive public policies.



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## Sensory Perception and Deception



### Grant Achatz

Alinea

Chicago, USA

Alinea has always made it a point to engage the senses and exploit the emotional aspects to enhance the dining experience. After our remodel of the restaurant in 2015 we took this a step further by adjusting our seating to allow us to further manipulate the surrounding environments to provoke the elements of surprise, magic and social experiments while using elements of lighting, sound and color to craft the dinner.

In the past each table in the restaurant would typically be on a different course. We decided to change this seating approach, having multiple tables start the meal at the same time and keep them at the same pace during the meal allowing us to use entire rooms as a theatre would a stage for a play. This way we could interject sound, environment changes, light, songs, and color to specific courses and not have it interfere with surrounding tables that might be on different courses.

This approach allows us to curate a fully immersive and tightly controlled narrative using many tools to make the meal thought provoking, entertaining, and meaningful in a different and more complex way.

In this presentation I will show examples of the different ways we use this approach at Alinea.

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**Grant Achatz** is the chef and co-owner of Alinea, NEXT, Roister, The Aviary and The Office in Chicago, IL and in NYC. Since 2007, Restaurant Magazine has recognized Alinea on their World's 50 Best Restaurants list, twice being named the Best Restaurant in North America and last year ranking number 37 in the world. In 2013 Restaurant Magazine bestowed the coveted Chef's Choice Award on Achatz. In spring of 2011, Chef Achatz was named as one of Time Magazine's 100 most influential people. The James Beard Foundation awarded him Outstanding Chef of the Year 2008 and Gourmet Magazine named his restaurant the Best Restaurant in America in 2006. Since 2011, Alinea has been awarded 3 stars in the Michelin guide. Elite Traveler Magazine has named Alinea "The Elite 100 Restaurants" top restaurant since 2012.



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## Russian Revolution



### Vladimir Mukhin

White Rabbit

Moscow, Russia

Russian gastronomy is unlike any other: its traditions were lost during Soviet era. For 70 years government was steadily killing creativity: chefs were all using one same cookbook. When SU collapsed Russia in terms of gastronomy has come a 100-year way in just 10 or 15. Previously being a chef meant to be a black sheep in a family – now here's the first generation of Russian chefs who want not to copy blindly, but to create their own style and vision. That's Russian Gastronomic Revolution!

Chefs are not new rock-stars: they are pioneers like Columbus or Marco Polo. Their passion for knowledge makes them travel across the country, explore traditions, lost cooking techniques, ingredients, and share this knowledge. People are craving to get involved and to get new experiences. Chefs are lucky to combine many aspects in their creations: visual perfection, aroma, taste and social impact. Like true art gastronomy is connecting people.

How smartphone connects you with beloved ones, technology connects you to the future and turns any random venue into a kitchen. White Rabbit is now using QR-codes, 3-D printing and augmented reality. Follow the White Rabbit and its chef Vladimir Mukhin into his world of daring and sophisticated gastronomic fantasies.

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**Vladimir Mukhin** is a cook in the 5th generation. He started his career 12 years old in the kitchen of a restaurant, where his father worked as a Chef. In 2004 he graduated from Plekhanov Russian University of Economics with a specialty of "Engineer-technologist of public catering". Took internships at the restaurants "Belgrad", "Kitai-Gorod", "Nostalgie", "Cafe Pushkin". In 2000, he joined the team of the restaurant "Red Square, 1", headed by the famous chef Alexander Filin, President of the National Guild of Chefs. Together they opened "Buloshnaya" café in 2003, and one year later Vladimir headed its' kitchen, becoming the youngest chef of the National Guild of Chefs. Since 2012, he is the chef of the Moscow restaurant «White Rabbit». In 2014, he headed the kitchen of the restaurant «Red Fox» in Rosa Khutor, which became a gastronomic discovery of the Olympic season.





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