

## Launching event for the publication of the Handbook of Molecular Gastronomy

May 12th, 2021  
2 PM Paris Time, 1PM Irish Time

Confirmation of attendance at <https://indico.in2p3.fr/event/24258/>

Connect to:  
<https://eu.bbcollab.com/guest/999ba035210a478db00a4c09f61bce5d>

The four Editors of the Handbook of Molecular Gastronomy (Roisin Burke, Alan Kelly, Christophe Lavelle, Hervé This vo Kientza) are organizing an online conference, about the book, on the 12th of May.

The topics discussed will reflect the 3 parts of the book:

- Molecular and physical gastronomy: scientific aspects
- Education practices of molecular and physical gastronomy
- Applications of molecular and physical gastronomy to culinary art

The Programme is (**Paris time ; for Irish time, it's 1 h before**):

14.00-14.15 : Introduction of the French Ambassador in Ireland, His Excellency Vincent Guérend, by Roisin Burke

14.15-14.45:

14.15-14.30 : Hervé This : **Molecular Gastronomy, Molecular Cooking, Molecular Cuisine, Note by note cooking, Note by note Cuisine**

14.30-14.40 Roisin Burke : **The Handbook of Molecular Gastronomy, a huge project**

## **Session 1. Molecular Gastronomy**

Chair : Alan Kelly

[a.kelly@ucc.ie](mailto:a.kelly@ucc.ie)

14.45-15.05 : **Stability of crystallising emulsions**, by Thomas Vilgis

14.05-15.25 : **The Glycation and Maillard Reactions as the Major Non- Enzymatic Browning Reactions in Food**, Frederic Tessier

15.25-15.45 : **What are Lecithins for the food industry**, Elzbieta Kosakiewicz and Daniel Cossuta

15.45-16.00 : **Frying**, by Franco Pedreschi

## **Session 2 : Education practices and application to culinary art**

Chair : Christophe Lavelle

[christophe.lavelle@mnhn.fr](mailto:christophe.lavelle@mnhn.fr)

16.15-16.35 : **Teaching Argumentation and Inquiry through Culinary Claims**, by Erik Fooladi

16.35-17.05 : **Note by Note Forest Floor**, by Sophie Dalton

17.05 : Questions, Follow up with the IJMPG, etc.

The link for connection will be <https://eu.bbcollab.com/guest/999ba035210a478db00a4c09f61bce5d>

## **The speakers :**

### **Rosin Burke**

Senior Lecturer in Culinary Science and Food Product Development

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### **Abstract :**

The idea for the Handbook of Molecular Gastronomy had already been proposed by the publisher a few years prior to 2016 and accepted by Hervé and Christophe. Then in September 2016, two Irish editors

joined the team i.e. Róisín and Alan. During the last five years the book evolved into a huge project culminating in a comprehensive book of 852 pages with contributions from international experts in many specific aspects of Molecular Gastronomy and its applications in educational practice and cooking. The contributors are based around the globe in many European countries, the U.S.A, Canada, South America, the Middle East and Asia. The book is organized in three parts. The first and main part is about the scientific discipline of molecular and physical gastronomy; it is organized as an encyclopaedia, with entries in alphabetical order, gathering the contributions of more than 100 authors. The second part addresses educational applications of molecular gastronomy, from primary schools to universities. The third part provides some innovative recipes by chefs from various parts of the world.

**Sophie Dalton**

TU Dublin, [c11393661@mytudublin.ie](mailto:c11393661@mytudublin.ie)

**Abstract :**

The Forest Floor is a dish that was created for the 4<sup>th</sup> International Contest for Note by Note Cooking. This presentation outlines the conceptualisation of a Note by Note dish, the inspiration, and the technical recipe development process. The four elements of the forest floor that inspired the dish: earth, fallen leaves, moss, and mushrooms were recreated using the principles of Note by Note cooking will be discussed. The dish represented a way for culinarians to conceptualise textures, aromas, and flavours and memories to create something new or to evoke nostalgia in the diner.

**Erik Fooladi :**

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**Abstract**

The recent 2-3 decades have seen a markedly increased interest in education aimed towards not only declarative knowledge, but also (e.g., scientific) methods and ways of thinking. Within this context, explicit promotion of reasoning and argumentation has come forth as an important field of educational research and innovation. The present contribution describes the project “Kitchen stories” which sought to develop a framework for teaching argumentation and inquiry in a cross-curricular setting. Herein, the explicit teaching of argumentation was utilised for students to analyse claims, expand them to build complete arguments and plan open-ended inquiry with regards to claims about food and cooking collected from authentic sources in everyday life (“culinary precisions”). This way a holistic teaching framework was constructed that incorporated project work, argumentation, inquiry, second-hand investigations, sourcing skills and declarative knowledge. Possibilities, challenges and prospects are discussed in using culinary precisions for teaching argumentation, inquiry and other pertinent topics in education. Among the most interesting are epistemic perspectives in the interplay between science and everyday life of the kitchen in the highly interdisciplinary setting of food and cooking.

**Elzbieta Kozakiewicz**

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**Daniel Cossuta**

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**Abstract:**

International Lecithin & Phospholipids Society defines lecithin as: "A complex mixture of glycerophospholipids of animal, plant, or microbiological origin, containing varying amounts of triglycerides, fatty acids, glycolipids, sterols, and sphingophospholipids". To simplify lecithin is a

group of different fatty substances found in plant and animal tissues that are essential for the proper functioning of cells.

The first lecithin products were obtained mainly from egg yolk, nowadays, the most commonly used lecithin is soy lecithin (GM and Non-GM), followed by sunflower and rapeseed lecithin. Lecithin has many forms, such as liquid lecithin, de-oiled powdered lecithin, granules, compounded lecithin (lecithin on a carrier) and various modified lecithin's (hydrolyzed, acetylated, hydroxylated). Currently, lecithin (E 322) is an authorized food additive in the EU at quantum satis in most foods. Lecithin provides numerous functionalities in various food categories like: Confectionery (chocolate-, sugar-), Bakery, Nutrition, Emulsions, Convenient foods (instant) etc.

### **Franco Pedreschi**

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#### **Abstract :**

Frying is often selected as a method for developing unique flavours and improving texture in processed foods that enhance their overall palatability. Frying is a food unit operation in which the liquid transferring heat is hydrophobic, yet becomes part of the food. Deep-fat frying consists of immersion of food pieces in hot vegetable oil. It is a rather complex process, comprising simultaneous heat and mass transfer with chemical reactions and textural changes taking place. The intense heat and mass transfer achieved during deep frying have led to innovative applications for food materials. As a result of frying, the piece of food emerges sterile and dry at the surface, with increased shelf-life. Finally, deep-fat frying also involves significant microstructural changes. Most of the desirable characteristics of fried foods are derived from the formation of a composite structure: a dry, porous, crispy and oily outer layer (crust) and a moist cooked interior (core) are formed during the process in the case of fried strips.

### **Frédéric J Tessier**

Analytical Biochemistry, Nutrition, Glycation & Maillard Reaction

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#### **Abstract :**

Glycation is the most general internationally accepted term for adduction of a sugar to another biomolecule. In particular, glycation of proteins by reducing sugars is considered the first step in the "Maillard reaction", a central group of chemical reactions that occurs when food turns brown in cooking and is involved in formation of flavour compounds and new textures.

For some 60 years, food chemists and other scientists have been working to elucidate the mechanisms involved when glycation reaction products form, and further, to interpret the impact of the glycation reaction on the quality of the food and to assess the physiological consequences related to the ingestion of such neoformed compounds. When specific glycation reaction products such as acrylamide are revealed as potentially harmful to human health, mitigation strategies should be developed, both at home and in commercial production, to reduce the risk of exposure. On the other hand, the chemical pathways of beneficial glycation products, such as melanoidins, must be promoted to ensure their optimum content in food. The most difficult task of all in food chemistry is to strike a balance between the formation of desirable and undesirable glycation reaction products.

**Hervé This**

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**Abstract :**

Molecular and physical gastronomy is the scientific discipline that looks for the mechanism of food preparation ("cooking"). Created in 1988, it has been developing, with many research group in scientific institutions and universities all over the world, and this Handbook to be published by CRC Press is an important milestone, after the creation of the AgroParisTech-INRAE International Centre for Molecular and Physical Gastronomy, because it was an opportunity to display some research by our colleagues from all over the world.

As any scientific activity, Molecular and physical gastronomy has applications in two fields : education and culinary art. For the first ones, culinary activities are applied from primary school to university, and beyond. And about applications to culinary art, there are two main directions : molecular cooking and molecular cuisine, since 1980, and note by note cooking, more recently. Examples of the two kinds of applications are shown in parts 2 and 3 of the Handbook.

**Thomas Vilgis**

Soft matter food physics, Max-Planck-Institute for Polymer Research, Professor for Theoretical Physics, University of Mainz

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**Abstract:**

The mouthfeel of culinary oil-in-water-emulsions, such as mayonnaises, is mainly determined by the interplay of surfactants, droplet sizes, and droplet numbers. Their shear rate and amplitude dependent viscosity show typical jamming and de-jamming transitions, associated with shear thinning properties, relevant during oral processing. When the discontinuous oil / fat phases undergoes crystallization transitions as observed in chocolate creams or certain fresh-cheese constructions new length scales emerge and change the physical properties of the emulsions significantly. The dimension of the crystals interfere strongly with the droplet sizes and may cause a breakdown of the emulsion. In the present talk, we present some results on protein stabilized cocoa butter emulsions investigated by microscopy, rheology, X-ray scattering and rheo-optical methods. Consequences on homemade chocolate creams, ganaches and mousses will be discussed.