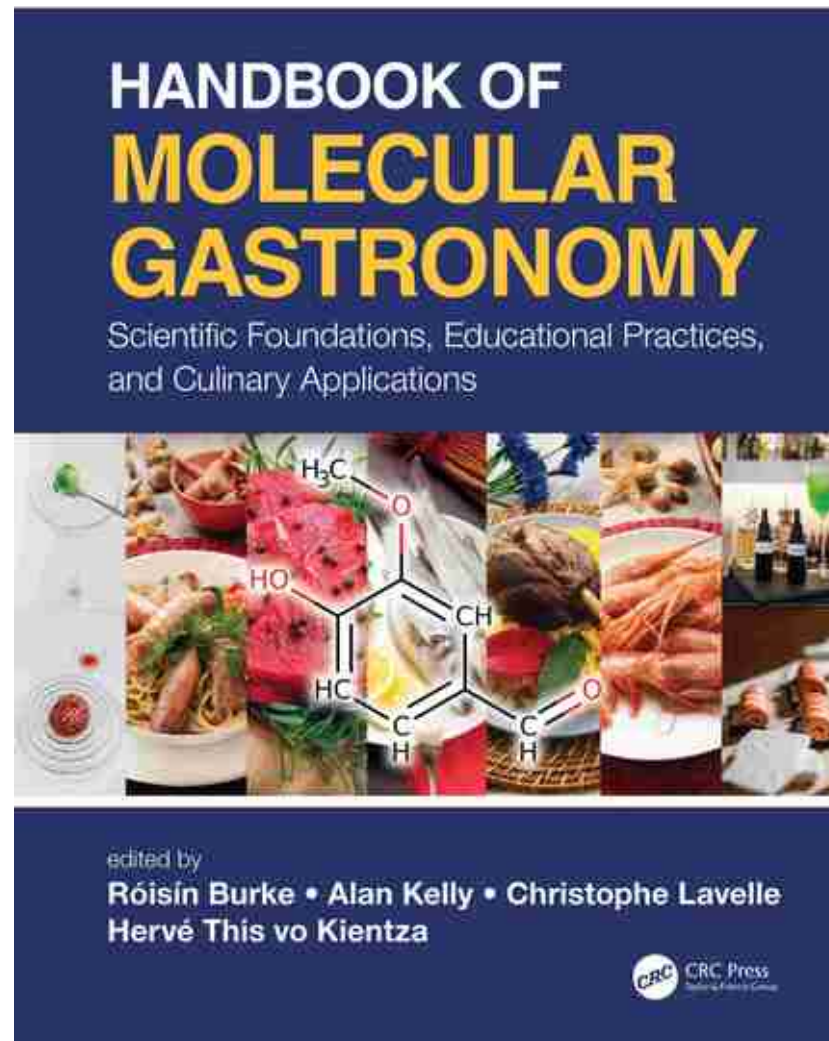
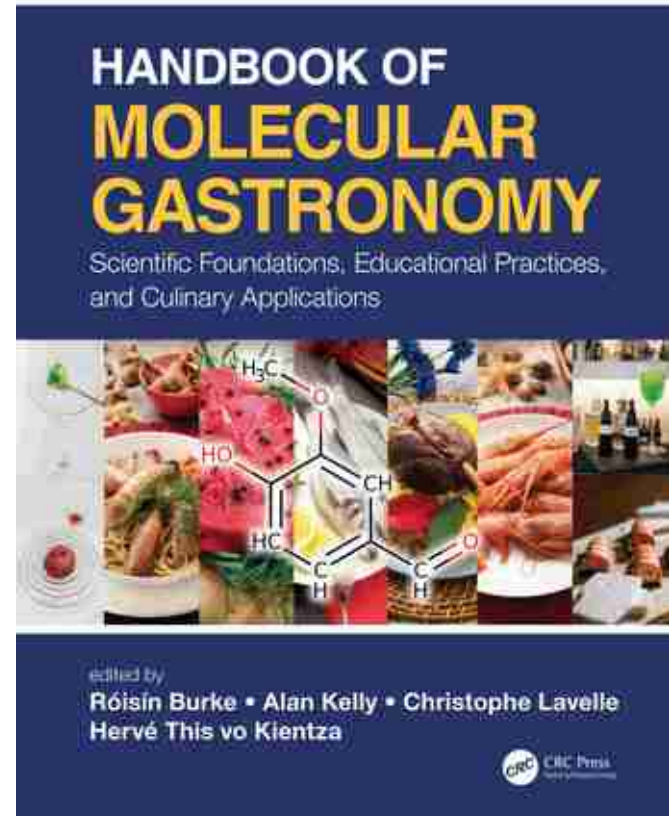


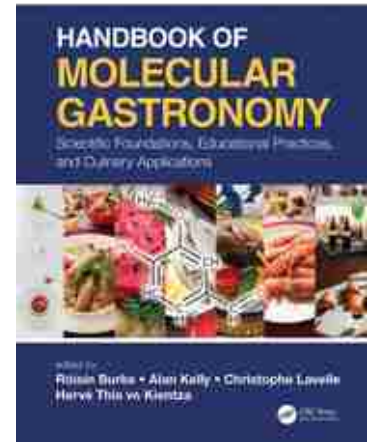
# Molecular and Physical Gastronomy Seminar #4



# 2021 : a friendly community



# Three parts for now and for the future



1. Scientific research : molecular and physical gastronomy
2. Educational practices
3. Applications to culinary art (“Edible ideas”)

- Applications
- Partners
- FIPDes Courses
- Scholarships for Professionals
- What's going on in FIPDes
- Press and Information
- Contact



WITH A HOLISTIC VIEW - FROM CONCEPTION TO PROTOTYPE AND FINAL PRODUCT

Welcome to the website of the Erasmus Mundus Master in Food Innovation and Product design



**DOWNLOAD**

FIPDES Master

**CONNECT**

- Erasmus Mundus Community
- Erasmus Mundus Professionals Database

**NOW IN FIPDES**

Testimonials

**LINKS**

- Erasmus Mundus and related websites
- Erasmus Mundus Erasmus+



**Education**



**Cooking**





# Now, every year : the International Workshops on Molecular and Physical Gastronomy

10<sup>th</sup>  
International Workshop  
on Molecular and Physical Gastronomy  
(IWMPG 10)

AgroParisTech, 14 rue Claude Bernard, 75004 Paris (France)  
Tel : +33 (0)1 4401 34 41, email : [agroparis@agroparis.fr](mailto:agroparis@agroparis.fr)

1-3 June 2021

Organized by  
AgroParisTech-INRA International Centre for Molecular Gastronomy

Under the patronage of the Académie Française de France



For connection:  
[https://cu.bbcollab.com/guest/  
9ad4c559d7234f7e9fe394e083a01f6a](https://cu.bbcollab.com/guest/9ad4c559d7234f7e9fe394e083a01f6a)

**Suspensions**  
(liquid suspensions, solid suspension,  
complex suspensions)

Directed: Hervé Thibault  
Organization Committee:  
Pr Róisín Burke (Technological University Dublin, Ireland), Pr Hervé Thibault  
Nizette (AgroParisTech-Inra), Pr Dan Vudayer (University of Cluj-Napoca,  
Romania)

INRAE ICMPG

# Next topic

## 11<sup>th</sup> International Workshop on Molecular and Physical Gastronomy (IWMPG 10)

AgroParisTech, 16 rue Claude Bernard, 75006 Paris (France)  
Tél: +33 (0)1 44 08 16 61. email : [icmpg@agroparistech.fr](mailto:icmpg@agroparistech.fr)

2-3 June 2022

Organized by:  
AgroParisTech-INRAE International Centre for Molecular Gastronomy

Under the patronage of the Académie d'agriculture de France



For connection:  
[https://eu.bbcollab.com/guest/  
4dd4e6492b14442e92445f262c2f0a1b](https://eu.bbcollab.com/guest/4dd4e6492b14442e92445f262c2f0a1b)

**Scales**  
**Describing and analyzing food and  
culinary transformations at various  
scales (from molecular to  
macroscopic), building food at all  
scales**

INRAE

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# A tool for the activities of our community (don't be shy, send manuscripts)

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## International Journal of Molecular and Physical Gastronomy

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INTERNATIONAL CENTRE FOR MOLECULAR GASTRONOMY, AGROPARISTECH-INRAE

Centre international de gastronomie moléculaire

International Centre for Molecular and Physical Gastronomy

- 1 Scientific and technology research
- 2 Education
- 3 Events and international networking
- 4 About Nite by Nite Cooking ("synthetic cooking")

The Editorial Board

The Editorial Board of this Journal is made of: Thomas Vilgis, Max Planck Institute, Mainz, Germany Weon-Sun Shin, Hanyang University, Seoul, South Korea Juan Valverde, (...)

The International Journal of Molecular and Physical Gastronomy

Molecular and Physical Gastronomy (Molecular Gastronomy, for short) is the scientific activity which looks for the mechanisms of phenomena occurring during culinary (...)

Internal School Enrol

# In the Int J Mol Phys Gast

## The content of this Journal

1. Editorials : <http://www.agroparistech.fr/-1-Editorials-.html>
2. Science Section : <http://www.agroparistech.fr/The-Scientific-Section.html>
3. Letters to the Editors : <http://www.agroparistech.fr/Letters-to-the-Editors.html>
4. Publications by University students :
5. Educational Applications of Molecular Gastronomy :  
<http://www.agroparistech.fr/Educational-Applications,2207.html>
6. Technological Applications of Molecular Gastronomy :  
<http://www.agroparistech.fr/Technological-Applications,2211.html>
7. Comments : <http://www.agroparistech.fr/Comments,2213.html>
8. News : <http://www.agroparistech.fr/In-Brief,2209.html>



# And for the 10th Contest of Note by Note Cooking

**“Savoury dice  
(no Rubik cube)**

**But beforehand, we have the  
Christmas dinner to prepare**



# Hypotheses and problem

Assuming:

- all pieces of meat are geometrically analogous, and they are made of the same material
- the oven is powerful enough to keep the temperature at any time
- at the beginning of cooking, the piece of meat is at room temperature
- the oven is preheated at 200 °C.

As a whole, we have 5 variables  $T$ ,  $\rho$ ,  $M$ ,  $K$ ,  $Cp$ , whereas the number of dimensions (m, kg, s, °C) is only four. We look for one law of the kind :

$$T \sim M^a \cdot \rho^b \cdot K^c \cdot Cp^d$$

# Using the units :

$$s \sim \text{kg}^a \cdot \text{kg}^b \text{m}^c \text{kg}^e \text{m}^{2d} / \text{m}^{3b} \cdot \text{s}^{3c} \text{ } ^\circ\text{C}^e \text{ s}^{2d} \text{ } ^\circ\text{C}^d$$

## We find :

$$T \sim M^{2/3} \rho^{1/3} K C$$

In other words, the cooking time is varying as the mass at the power 2/3...  
which is what chefs advise to do !

**But low temperature cooking  
makes it much better**





# Don't forget the heat gun for glycation reactions



# Celebrate knowledge and gourmandise!

