

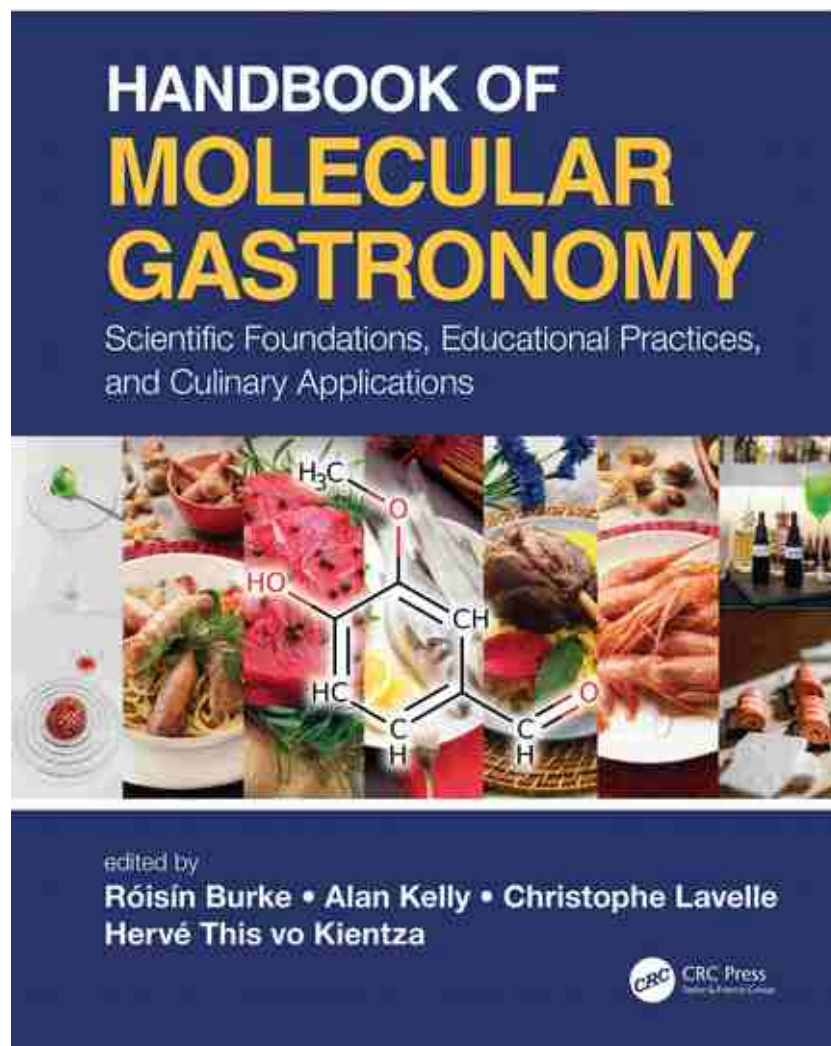
# Molecular and Physical Gastronomy

8 Sept 2021

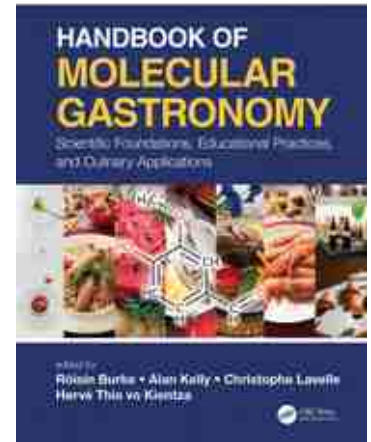
Science, Educational practices  
and Culinary Art



# About the new link between us



# Three parts



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

# Our program today

## Session 1, chairperson Alan Kelly

14.15-14.35 : Bruno Mesz, Taste and Sound

14.35-14.55 : Charles Spence, Plating

14.55-15.15 : Benjamin Strottrup, The Multi-Eyed Flat Bread

*Tea Break (or coffee, or rather Cremant from Alsace)*

## Session 2, chairperson Roisin Burke

15.15-15.35 : Marisol Herrera Jimenez, About El Manchamanteles, a Mexican sauce

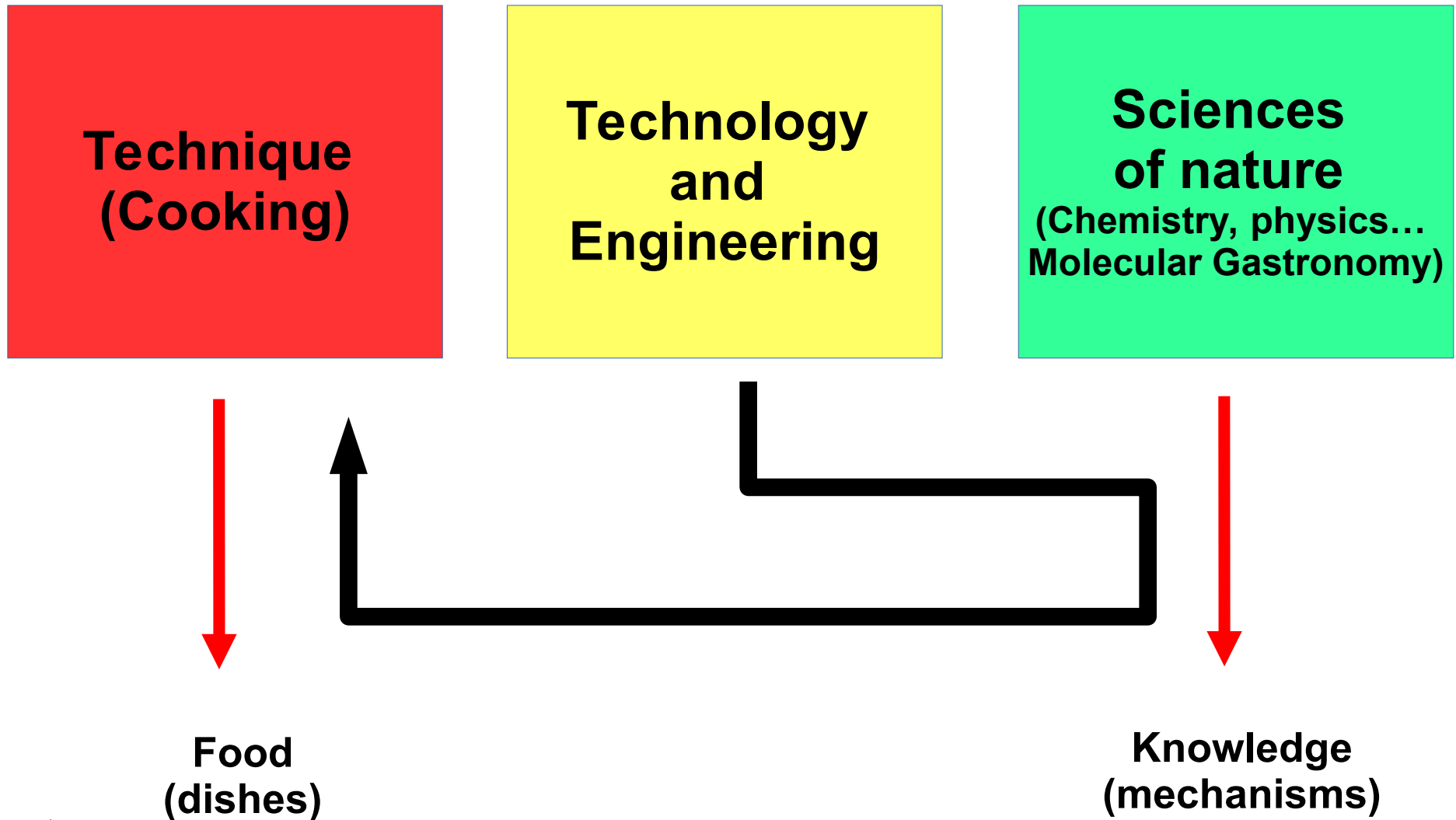
15.45-16.05 : Christophe Lavelle, Teaching the teachers

16.05-16.25 : Michael Pontif, Cooking with notes

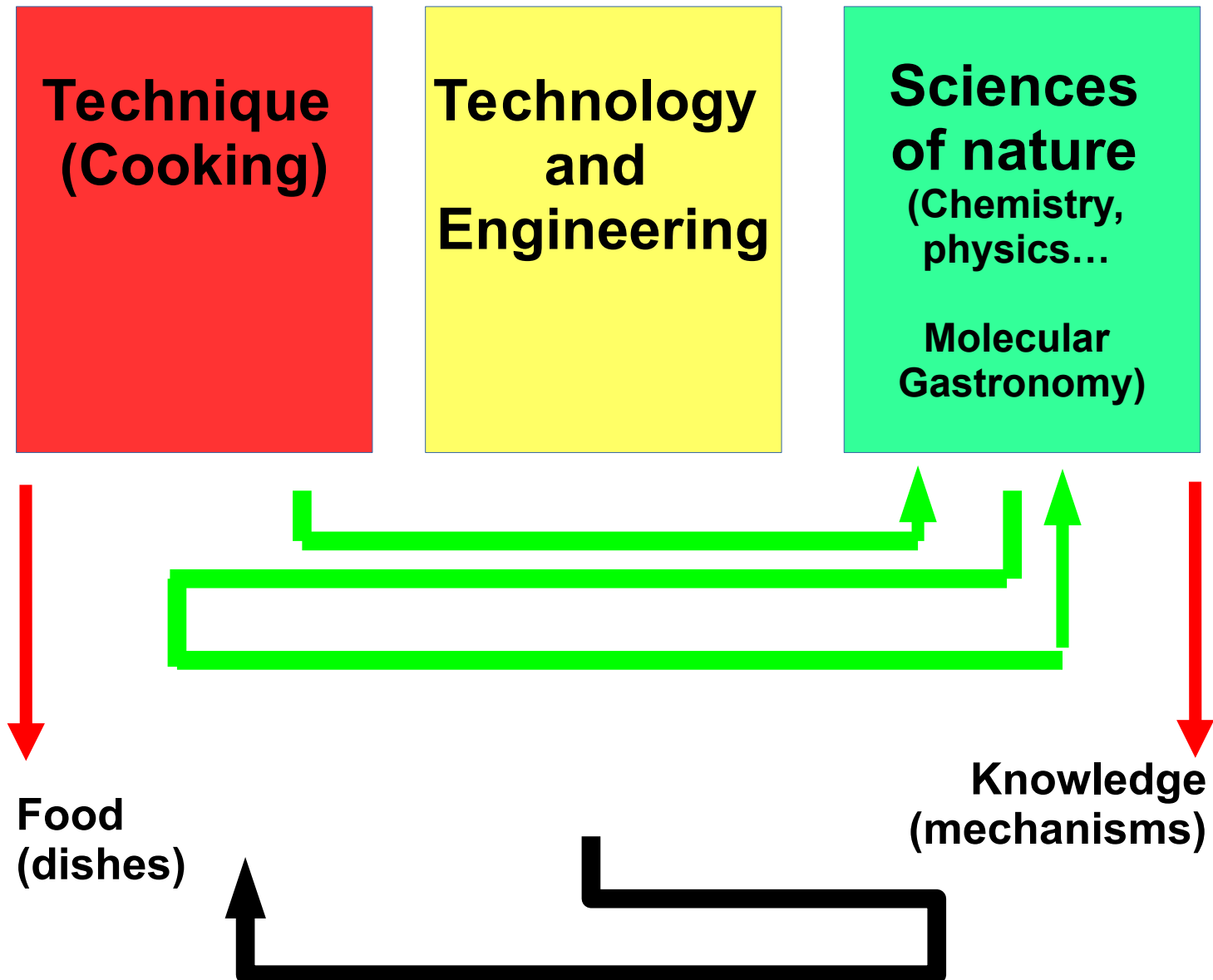
**16.25-16.45** : Questions, Comments, Discussion, Follow up with the fourth event (December 1st, Special « Christmas Lectures »).

# **More about technique, technology and science**

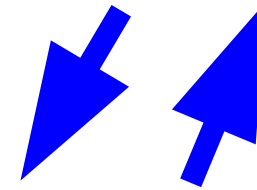
# The wrong vision



# A more exact one



# For cooking





# In particular for “culinary precisions”

## Compote de poires.

Prenez une dizaine de poires de moyenne grosseur, pelez-les et mettez-les au fur et à mesure dans l'eau froide. Faites fondre ensuite à feu doux dans un poêlon 125 grammes de sucre en morceaux avec un peu d'eau : dès que le sucre est fondu, placez-y les poires, arrosez-les de jus de citron si vous désirez que les poires restent blanches ; si vous les préférez rouges, il ne faut pas ajouter de jus de citron, et il est indispensable de les cuire dans une casserole de cuivre étamé.

# About pear jams

## Compote de poires.

Prenez **une dizaine** de **poires** de **moyenne** **grosseur**, **pelez-les** et **mettez-les** **au fur et à** **mesure dans l'eau froide**. **Faites fondre** ensuite **à feu doux dans un poêlon** **125 grammes de** **sucré en morceaux** avec **un peu d'eau** : **dès que** **le sucre est fondu**, **placez-y les poires**, **arrosez-** **les de jus de citron** si vous désirez que les **poires restent blanches** ; si vous les préférez **rouges**, il ne faut pas ajouter de jus de citron, **et il est indispensable de les cuire dans une** **casserole de cuivre étamé**.

Proportion of definitions: 9 %

Proportion of precisions: 67 %

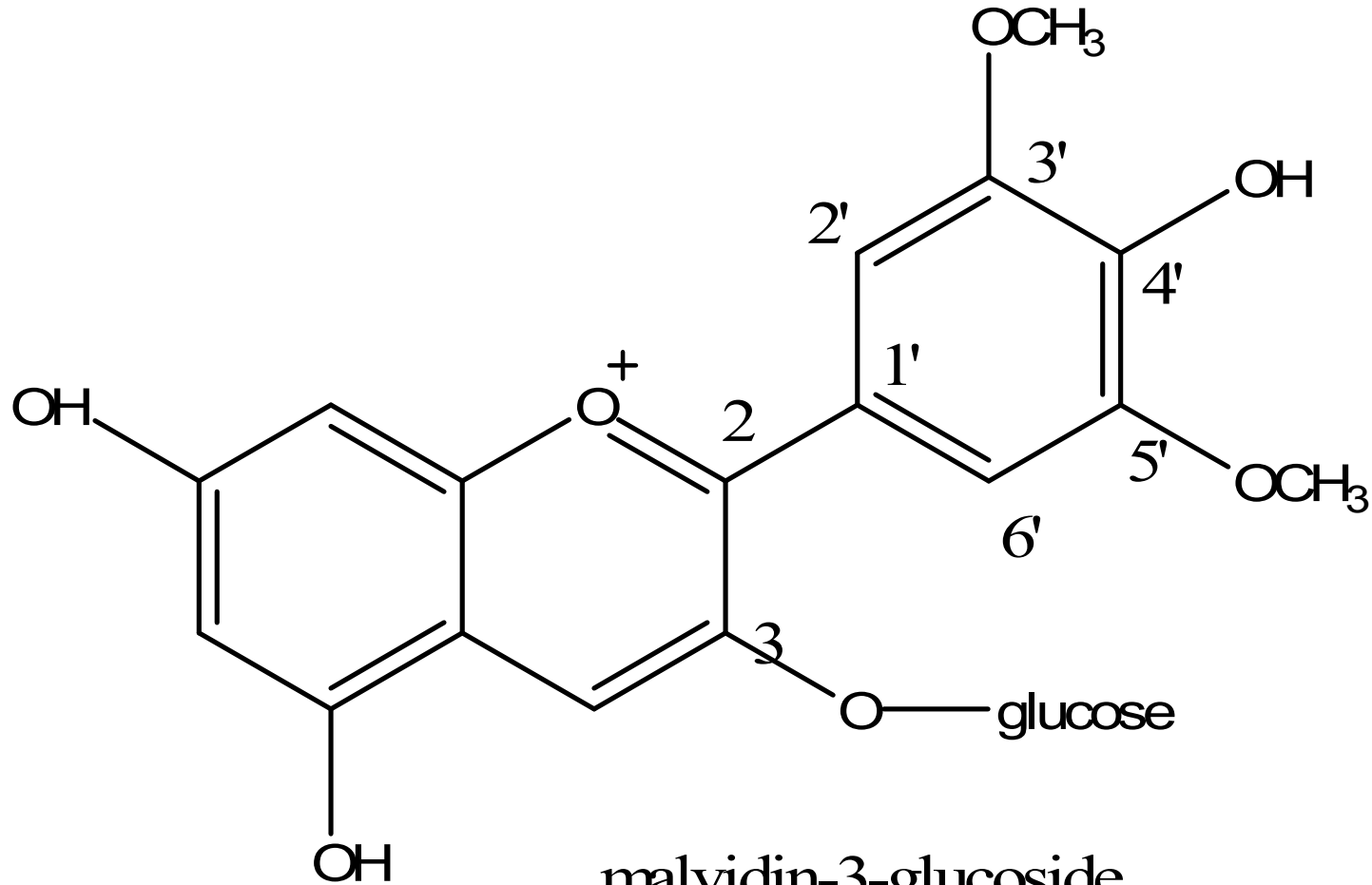
Proportion of useless words: 24 %



# From the same culinary book



# Often, for the colour of food



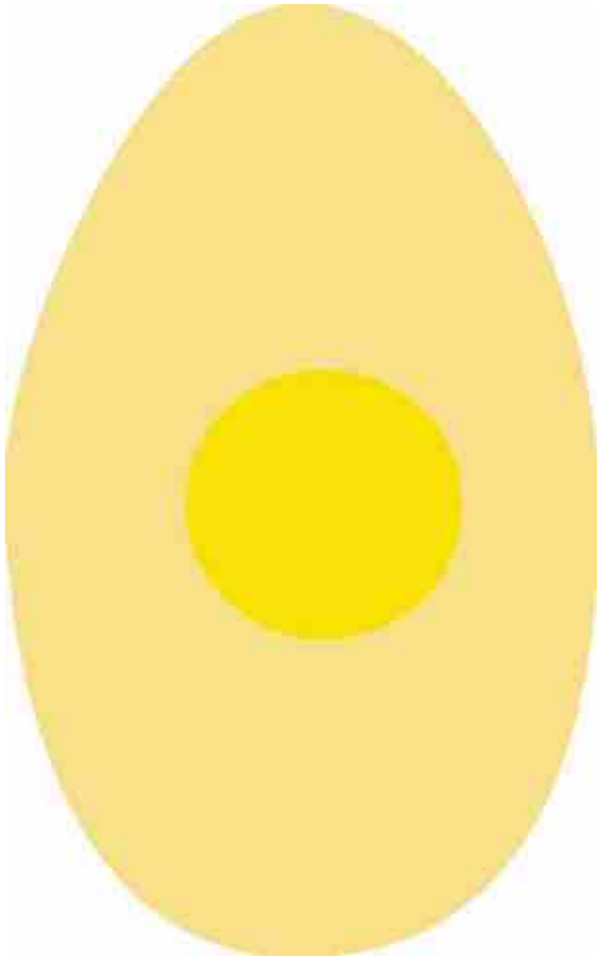
malvidin-3-glucoside  
(forme flavylium)  
c'est un flavonoïde



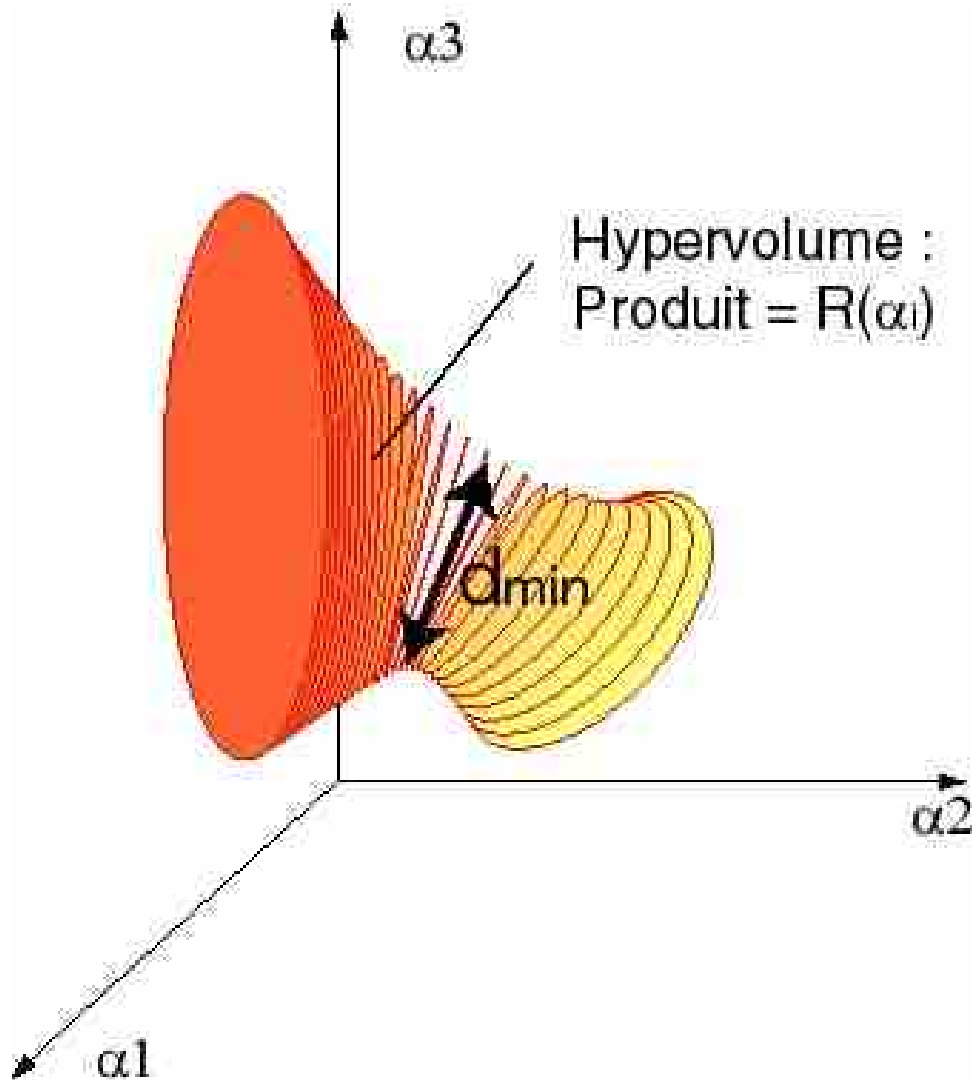
# Some culinary precisions are true



# But some are wrong



# How to quantify the robustness of a recipe?



Robustness

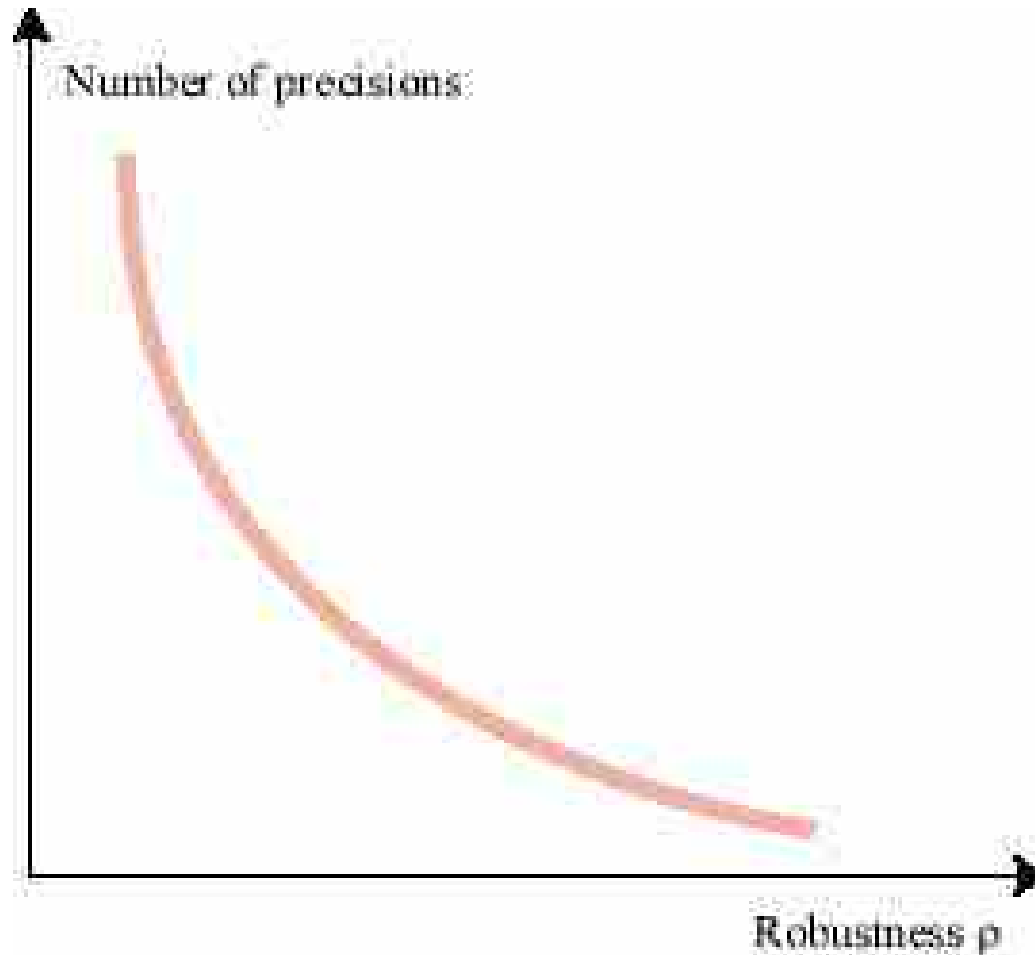
$$\rho = d_{\min}$$

For a simple case:

$$\rho_i = \Delta\alpha_i / p_i$$

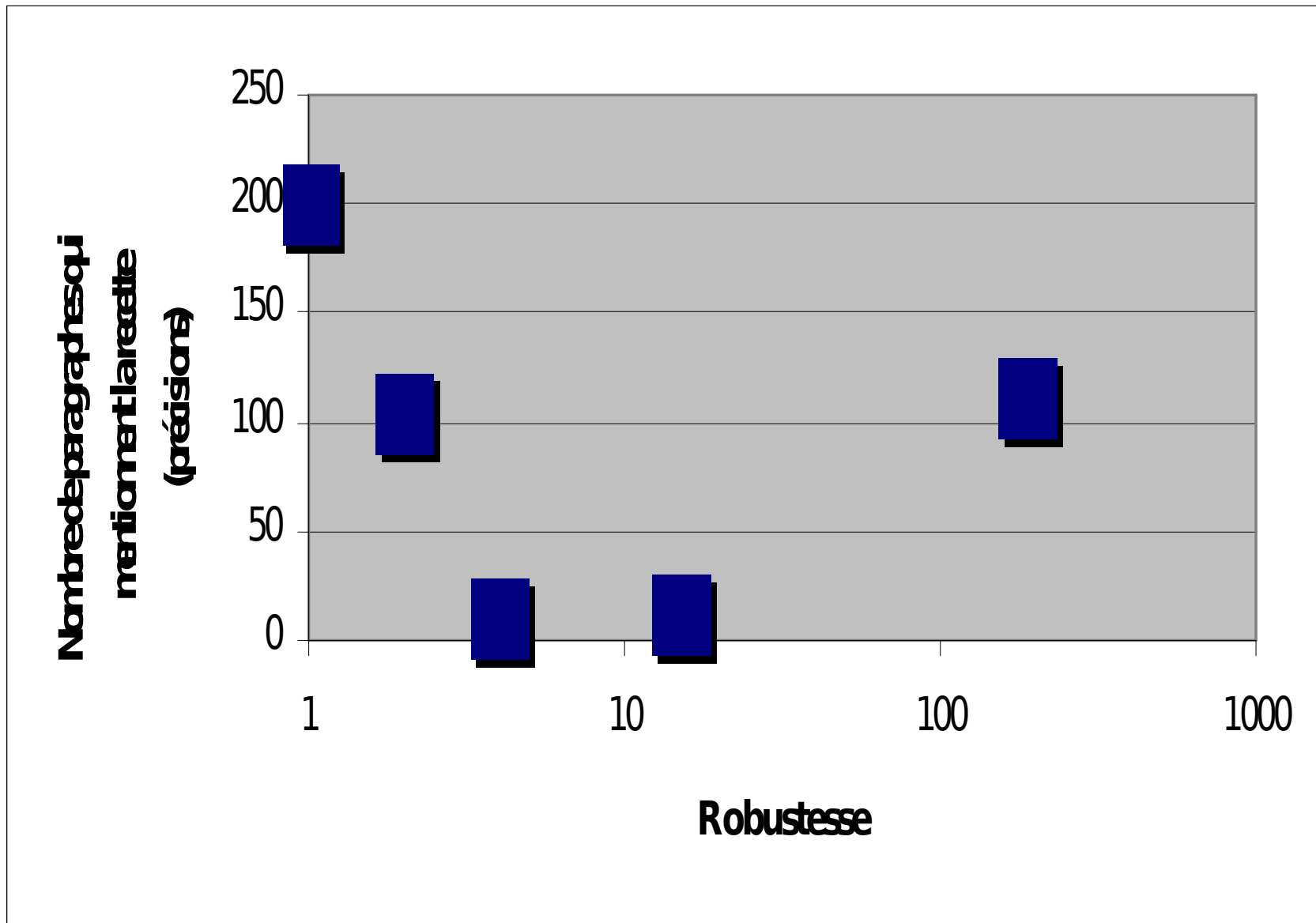


# The relationship between robustness and the number of precisions?



$$N = 1/\rho ?$$

# Answer : Not exactly



# About technology

# Molecular Cooking

=

using  
new tools  
new methods



# Note by Note Cooking:

instead of meat, fish, vegetables and fruits,  
use  
**COMPOUNDS**



# And the International Contest for Note by Note Cooking



# Winner 2014



# Winner of the 2015 International Contest for Note by Note Cooking





# Winner 2016, Guillaume Siegler (Cordon Bleu Tokyo)



# Often using

iqemus - Cuisine noire à note <https://iqemus.com/>



iqemus

catalogue à propos mentions légales moteynotecooking

FRANÇAIS / ENGLISH

8/20/17, 10:09 AM



Amlerise



Baliqin



Berthome



Carez



Chapre



Chole

<https://iqemus.com/en/product/amlerise-2/>

<https://iqemus.com/en/product/baliqin-2/>

<https://iqemus.com/en/product/berthome-2/>

<https://iqemus.com/en/product/carez-2/>

<https://iqemus.com/en/product/chapre-2/>

<https://iqemus.com/en/product/chole-2/>



Cocci



Coch



Conq



Copesca



Ernel



Floze

<https://iqemus.com/en/product/cocci-2/>

<https://iqemus.com/en/product/coch-2/>

<https://iqemus.com/en/product/conq-2/>

<https://iqemus.com/en/product/copesca-2/>

<https://iqemus.com/en/product/ernel-2/>

<https://iqemus.com/en/product/floze-2/>



Frum



Hertz



Mapo



Monka



Naha



Ornum

# And for the 10th Contest

**“Savoury dice  
(no Rubik cube)**

# **And also about Studies**

- Applications
- Partners
- FIPDes Courses
- Scholarships for Professors
- What's going on in FIPDes
- Practical Information
- Contact



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FIPDes master

**LINKS**  
Erasmus Mundus and related programmes  
Erasmus Mundus & Erasmus+



**Education**



**Cooking**





- Applications
- Partners
- FIPDes Course
- Scholarships for Professors
- What's going on in FIPDes
- Practical Information
- Contact



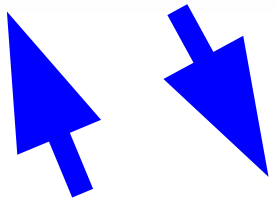
WITH AN HOLISTIC VIEW - FROM CONCEPTION TO PROTOTYPE AND FINAL PRODUCT

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E. Erasmus students and staff  
E. Erasmus Master  
E. Erasmus+

# But why not also ?



# In primary schools, or high schools



# And also in universities

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Food Innovation & Product Design

Erasmus Mundus

Search go

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- Scholarships for Professors
- What's going on in FIPDes
- Practical Information
- Contact

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FIPDes teacher

**CONNECT**

- FIPDes Management Portal on Teamsite
- FIPDes Pedagogical Platform on Claroline

**NOW IN FIPDES**

- Student life in Naples, Fall 2012
- Sensory Analysis, AgroParisTech, Fall 2012

**LINKS**

- Erasmus students and alumni association
- Erasmus Mundus
- Study in Europe

**Apply Now!**  
Apply as a self / external funding applicant.  
Deadline : June 12th

**SCHOLARS**

YOU WANT TO CONTRIBUTE TO THE DEVELOPMENT OF INNOVATIVE, SUSTAINABLE AND HEALTHY FOOD PRODUCTS

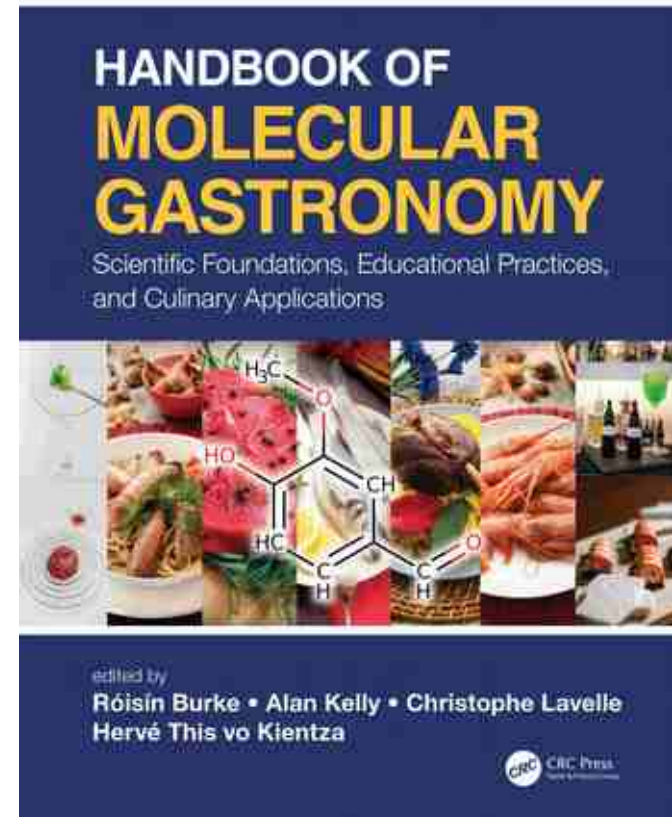
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In collaboration with:

- Dublin Institute of Technology
- AgroParisTech
- Lund University
- Università Federico II di Napoli (UNINA)



# 2021 : a friendly community



# 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, 18 rue Claude Bernard, 75004 Paris (France)  
Tel : +33 (0)1 4405 16 01, email : [ia.wmpg@agroparistech.fr](mailto:ia.wmpg@agroparistech.fr)

1-3 June 2021

Organized by

AgroParisTech-INRA International Centre for Molecular Gastronomy

Under the patronage of the Académie d'Agriculture de France



For connection:

[https://cu.bbcollab.com/guest/  
9ad4c559d7234f7e9fe394c083a01f6a](https://cu.bbcollab.com/guest/9ad4c559d7234f7e9fe394c083a01f6a)

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

Member: <http://www.academie-agriculture.fr>  
Organization Committee

Pr Róisín Burke (Technological University Dublin, Ireland), Pr Hervé Thibault  
Kretz (AgroParisTech-Inra), Pr Dan Vodnar (University of Cluj-Napoca,  
Romania)

# Next topic

To be selected among :

1. food wastes (can we use peels, bones, etc.?)
2. browning
3. functionality of proteins
4. designing food (Carla Paes Martins)
5. bioactivity, bioactive compounds, compounds release
6. gels
7. imaging food
8. link between process and flavour (how to predict the chemical and physical composition from ingredients and process)
9. scales for food

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

Home · AgroParisTech · Départements de formation et de recherche

## International Journal of Molecular and Physical Gastronomy

### 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 (...)

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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

A Portal for Molecular Gastronomy in the  
World

[International Journal of Molecular and  
Physical Gastronomy](#)

1 The Journal itself

2 Some information on this journal

3 Guide for Authors

Other Events

The International Workshops on Molecular  
and Physical Gastronomy

4 About Note by Note Cooking ("synthetic  
cooking")

# 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>



# Celebrate knowledge and gourmandise!



# Celebrate Molecular Gastronomy



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