



## Prof. Domenico **Gabriele**

### **Associate Professor of Fundamentals of Chemical Engineering (S.S.D. ING-IND/24)**

Department of Computer, Modelling, Electronic and System Engineering – DIMES

University of Calabria

Cubo 39C, 3rd floor



domenico.gabriele@unical.it



0984-496687

**Office hours:** On Tuesday from 9.30 up to 11.30. Every day by appointment (by email)

### **Academic career**

**03/01/2005 – 05/02/2020, Assistant professor**, SSD ING-IND/24 Fundamentals of Chemical Engineering, University of Calabria.

**01/03/2002 – 03/01/2005, Research fellowship**, S.S.D. ING/IND 24 concerning “Development of rheological models for food systems”, Department of Chemical and Materials Engineering, University of Calabria.

**01/2001 – 12/2001, Post-doc fellowship** concerning “Sterilization models of cherry tomatoes” (CRATI s.c.r.l.), Department of Chemical and Materials Engineering, University of Calabria.

**11/1997 – 10/2000, PhD in Chemical Engineering** (Cycle XIII) concerning "Rheology of food gels", University of Napoli “Federico II”; research activities carried out at the Department of Chemical and Materials Engineering, University of Calabria.

### **Research activity**

Research activity is focussed mainly on study and modelling of transport phenomena and material properties in complex systems with particular attention to food engineering and rheology of weakly structured systems. The activities can be divided in two main areas: investigation on material properties with the aim of designing novel systems (“product design”); investigation on process conditions to optimize existing processes or to design new ones (“process design”). In the area of product design he is involved mainly in the rheological characterization and modelling of multiphase structured systems such as: suspensions, emulsions, emulgels, bigels, doughs, etc. to be used in different industrial areas (foods, cosmetics, bitumens, etc.). He is coauthor of 58 papers in international journals, more than 150 contributions in proceedings of International and National refereed conferences, one international patent concerning a novel apparatus for rheological properties determination and one international patent concerning a novel structured and healthy fat system with low saturated fat content, 5 book chapters.

### **Teaching activity**

Teaching activity focussed on topics concerning the scientific area of Fundamentals of Chemical Engineering, concerning Rheology, Chemical Reactors, Thermodynamics and Transport Phenomena within the Bachelor and Master in Chemical Engineering, bachelor in Food Engineering, Master in Science and Engineering of Innovative and Functional Materials.

Current courses:

*Master in Science and Engineering of Innovative and Functional Materials (LM-53)*

**Rheology** (I year), Course instructor from academic year 2016/17 up to now

**Modeling of production processes and transformation of complex materials** (II year), Course instructor in academic year A.A 2015/16, collaboration to course activity (34 hours) in academic year 2019/20

*Bachelor in Food Engineering (I-9)*

**Thermodynamics of Food Systems** (II year), Course instructor from academic year 2018/19 up to now

### **Other activities**

**Vice-coordinator** of the Degree Course Council in Food Engineering

**Secretary of Italian Society of Rheology** since 2004 up to now.

**Member of ESR (European Society of Rheology) Committee** for the period 2018-2021.

### **Publications**

The list of publications is reported in <https://iris.unical.it/cris/rp/rp12361>, here a short list of papers in international journals for the period **2015-2020** is shown:

1. Lupi, F. R., Franco, G., Baldino, N., **Gabriele, D.** (2020), *The effect of operating conditions on the physicochemical characteristics of whey proteins-based systems*, *Rheologica Acta*, 59, 227-238, ISSN 0035-4511, Springer-Verlag GmbH, Heidelberg, Germany, DOI: 10.1007/s00397-020-01197-6
2. Baldino, N., Carnevale, I., Laitano, F., Lupi, F.R., Curcio, S., **Gabriele, D.**, (2020), *Formulation of bread model doughs with resistant starch, vegetable proteins and transglutaminase*, *European Food Research and Technology*, 246, 397-408, DOI: 10.1007/s00217-019-03409-7, ISSN 1438-2377, Springer-Verlag GmbH, Heidelberg, Germany.
3. Lupi, F. R., Puoci, F., Bruno, E., Baldino, N., Marino, R., **Gabriele, D.** (2020), *The effects of process conditions on rheological properties of functional citrus fibre suspensions*, *Food and Bioproducts Processing*, 121, 54-64, DOI: 10.1016/j.fbp.2020.01.01, ISSN 0960-3085, Institution of Chemical Engineers, Rugby, England.
4. Baldino, N., Angelico, R., Caputo, P., **Gabriele, D.**, Oliviero Rossi, C., (2019), *Effect of high water salinity on the adhesion properties of model bitumen modified with a smart additive*, *Construction and Building Materials*, 225, 642-648, DOI: 10.1016/j.conbuildmat.2019.07.138, ISSN 0950-0618, Elsevier Sci Ltd, Oxford UK, pubblicato online 25/07/2019.
5. Shakeel A., Farooq U., Iqbala T., Yasina S., Lupi F.R., **Gabriele D.**, (2019), *Key characteristics and modelling of bigels systems: A review*, *Materials Science and Engineering C*, 97, 932-953, DOI: 10.1016/j.msec.2018.12.075, ISSN 0928-4931, Elsevier Science, Amsterdam, The Netherlands, pubblicato ad Aprile 2019.
6. Baldino N., Laitano F., Lupi F.R., Curcio S., **Gabriele D.**, (2018), *Effect of HPMC and CMC on rheological behavior at different temperatures of gluten-free bread formulations based on rice and buckwheat flours*, *European Food Research and Technology*, 224 (10), 1829-1842,

- DOI: 10.1007/s00217-018-3096-2, ISSN 1438-2377, Springer-Verlag GmbH, Heidelberg, Germany, pubblicato ad ottobre 2018.
7. Lupi F.R., De Santo M.P., Ciuchi F., Baldino N., **Gabriele D.**, (2018), *The role of edible oils in low molecular weight organogels rheology and structure*, Food Research International, 111, 399-407, DOI: 10.1016/j.foodres.2018.05.050, ISSN 0963-9969, Elsevier Science BV, Amsterdam, The Netherlands, pubblicato a settembre 2018.
  8. Baldino N., Mileti O., Lupi F.R., **Gabriele D.**, (2018), *Rheological surface properties of commercial citrus pectins at different pH and concentration*, LWT- Food Science and Technology, 93, 124–130, DOI:10.1016/j.lwt.2018.03.037, ISSN 0023-6438, Elsevier Science BV, Amsterdam, The Netherlands, pubblicato a luglio 2018.
  9. Lupi F.R., Mancina V., Baldino N., Parisi O.I., Scrivano L., **Gabriele D.**, (2018), *Effect of the monostearate/monopalmitate ratio on oral release of active agents from monoacylglycerols organogels*, Food and Function, 9, 3278-3290, DOI: 10.1039/C8FO00594J, ISSN 2042-6496, The Royal Society of Chemistry, Cambridge, UK, pubblicato a giugno 2018.
  10. Shakeel A., Lupi F.R., **Gabriele D.**, Baldino N., de Cindio B., (2018), *Bigels: A unique class of materials for drug delivery applications*, Soft Materials, 16 (2), 77-93, DOI: 10.1080/1539445X.2018.1424638, ISSN 1539-445X, Taylor & Francis Inc, Philadelphia, USA, pubblicato nel 2018 (online 22/01/2018).
  11. Baldino N., Oliviero Rossi C., Lupi F.R., **Gabriele D.**, (2017), *Rheological and structural properties at high and low temperature of bitumen for warm recycling technology*, Colloids and Surfaces A: Physicochemical and Engineering Aspects, 532, 592-600, DOI: 10.1016/j.colsurfa.2017.02.069, ISSN 0927-7757, Elsevier Science, Amsterdam, The Netherlands, pubblicato a novembre 2017.
  12. Lupi F.R., De Santo M.P., Ciuchi F., Baldino N., **Gabriele D.**, (2017), *A rheological modelling and microscopic analysis of bigels*, Rheologica Acta, 56, 753-763, DOI: 10.1007/s00397-017-1030-3, ISSN 0035-4511, Springer-Verlag GmbH, Heidelberg, Germany, pubblicato a settembre 2017.
  13. Baldino N., **Gabriele D.**, Gentile L., Lupi F.R., de Cindio B., De Luca M.C., (2017), *Drying of sausages made from the meat of black and white pigs: numerical modelling and structural investigation*, Drying Technology, 35(6), 724-735, DOI:10.1080/07373937.2016.1209681, ISSN 0737-3937, Taylor & Francis Inc, Philadelphia, USA, pubblicato nel 2017 (online 13/03/2017).
  14. Lupi F.R., Shakeel A., Greco V., Baldino N., Calabrò V., **Gabriele D.**, (2017), *Organogelation of extra virgin olive oil with fatty alcohols, glyceryl stearate and their mixture*, LWT- Food Science and Technology, 77, 422-429, DOI: 10.1016/j.lwt.2016.11.082, ISSN 0023-6438, Elsevier Science, Amsterdam, The Netherlands, pubblicato ad aprile 2017.
  15. Lupi F.R., Greco V., Baldino N., de Cindio B., Fischer P., **Gabriele D.**, (2016), *The effects of intermolecular interactions on the physical properties of organogels in edible oils*, Journal of Colloid and Interface Science, 483, 154-164 DOI 10.1016/j.jcis.2016.08.009, ISSN 0021-9797, Academic Press Inc Elsevier Science, San Diego, USA, pubblicato a dicembre 2016.
  16. Lupi F.R., Shakeel A., Greco V., Oliviero Rossi C., Baldino N., **Gabriele D.**, (2016), *A rheological and microstructural characterisation of bigels for cosmetic and pharmaceutical uses*, Materials Science and Engineering C, 69, 358-365, DOI: 10.1016/j.msec.2016.06.098, ISSN 0928-4931, Elsevier Science, Amsterdam, The Netherlands, pubblicato a dicembre 2016.
  17. Mazzulla S., Schella A., **Gabriele D.**, Baldino N., Sesti S., Perrotta E., Costabile A., de Cindio B., (2015), *Oxidation of human red blood cells by a free radical initiator: effects on rheological properties*, Clinical Hemorheology and Microcirculation, 60, 375-388, DOI: 10.3233/CH-141841, ISSN 1386-0291, IOS Press, Amsterdam, The Netherlands, pubblicato nel 2015.

18. Lupi F.R., Gentile L., **Gabriele D.**, Mazzulla S., Baldino N., de Cindio B., (2015), *Olive oil and hyperthermal water bigels for cosmetic uses*, Journal of Colloid and Interface Science, 459, 70-78, DOI: 10.1016/j.jcis.2015.08.013, ISSN 0021-9797, Academic Press Inc Elsevier Science, San Diego, USA, pubblicato a dicembre 2015.
19. Lupi F.R., **Gabriele D.**, Seta L., Baldino N., de Cindio B., Marino R., (2015), *Rheological investigation of pectin-based emulsion gels for pharmaceutical and cosmetic uses*, Rheologica Acta, 54, 41-52, DOI: 10.1007/s00397-014-0809-8, ISSN 0035-4511, Springer-Verlag GmbH, Heidelberg, Germany, pubblicato a gennaio 2015.