



# MRFOOD 2026

Milan 9-12 June 2026



# MRFOOD 2026

17th International Conference on the Applications of  
Magnetic Resonance in Food Science

June 09 to 12, 2026

## CONFERENCE PROGRAM

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## Welcome to MRFOOD 2026

On behalf of the Organizing and Scientific Committees, it is my great pleasure to extend a warm welcome to you at the 17th International Conference on the Applications of Magnetic Resonance in Food Science (MRFOOD2026), held in the vibrant and historic city of Milan.

This year's theme, "Unlocking Food's Molecular Secrets, for Sustainability and Health," reflects our commitment to exploring how NMR techniques—from routine analysis to the most advanced hyphenated and non-invasive methods—are improving our understanding on the relationship among food composition, quality, and the impact on sustainability and human health.

This year, we are truly excited to host this prestigious conference gathering under the theme of NMR applied to food science. Our aim is to create a dynamic forum for the exchange of groundbreaking ideas, the presentation of innovative research and applications, and the fostering of collaborations that will shape the future of our field.

We have curated an exceptional scientific program featuring distinguished keynote speakers, insightful talks, and competitive poster session. We are confident that the discussions and debates that will unfold over the coming days will be both stimulating and productive.

Choosing Milan as our host city is particularly fitting. A global capital of fashion and design, Milan is also a thriving hub for science, innovation, and culture. We encourage you to take some time to explore its renowned landmarks, from the magnificent Duomo to the historic Galleria Vittorio Emanuele II, and to savor the world-famous Lombard cuisine.

Most importantly, we thank you, the participants, for your invaluable contributions, which are the very foundation of this event's success. We wish you a fruitful and inspiring congress, and an enjoyable stay in Milan.

**Roberto Consonni**

On behalf of the Scientific Advisory Board

## INVITED SPEAKERS



**Kate Anderssen**  
Nofima, Norway



**Peter J. Basser**  
National Institute of Health,  
Bethesda, USA



**Penny A. Gowland**  
Sir Peter Mansfield Imaging  
Centre - United Kingdom



**Anne-Laure Rollet**  
PHENIX - CNRS  
Sorbonne University - France



**Evan R. McCarney**  
Korimako Chemical LTD.  
New Zealand



**Anatoly P. Sobolev**  
CNR - Institute for  
Biological Systems - Italy

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Germany

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INRAE, Rennes – France

**Francesco Capozzi**  
University of Bologna – Italy

**John van Duynhoven**  
Wageningen University – The Netherlands

**María Guðjónsdóttir**  
University of Iceland, Reykjavik – Iceland

**Diana Bernin**  
Chalmers University of Technology,  
Göteborg – Sweden

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CNR, Milan – Italy

**Laura Ruth Cagliani**  
CNR, Milan – Italy

**Dalila Iannone**  
CNR, Milan – Italy

## PROGRAMME

Sessions		10/06/2026	
<p><b>S1: Molecular composition of Food</b> FoodOmics, Food Chemistry, qNMR, Authenticity</p> <p><b>S2: Food Processing</b> Extrusion, digestion, mild processing, plant based foods</p> <p><b>S3: Next NMR development for Foods</b> Miniaturization, on/at line measurements, low/mid Field, Image/signal analysis</p> <p><b>S4: Multiscale structure of Food</b> Food physics, water state, structural anisotropy - relaxation/exchange</p>		Wednesday	
		9.00-9.45 <b>Plenary S1</b>	
		9.45-11.00 <b>Communications S1   Chair: Roberto Consonni</b>	
		<p><b>A. Sobolev</b>-From Farm to Fork: How NMR Metabolomics Decodes Environmental, Agronomic, and Postharvest Impacts on Food</p> <p><b>L. Wagner</b>-Differentiation of pork (<i>Sus scrofa domestica</i>) and wild boar (<i>Sus scrofa</i>) meat using <sup>1</sup>H NMR spectroscopy</p> <p><b>P. Solovyev</b>-NMR spectroscopy in the analysis of dairy products</p> <p><b>C. Pedrazzani</b>-<sup>1</sup>H qNMR method for the identification and quantification of monosaccharides in dietary fibre fractions</p>	
		11.00-11.30 <i>coffee break</i>	
		11.30-12.20 <b>Communications S1   Chair: Antonio Gilberto Ferreira</b>	
		<p><b>L.R. Cagliani</b>-Authenticating saffron and bee products: HR NMR and Chemometric Insights</p> <p><b>A. Mascellani-Bergo</b>-Integrated <sup>1</sup>H NMR analysis of protein-bound amino acids and metabolites in wheat, spelt, and Kernza® cereal products</p>	
		12.20-12.50 <b>Poster session</b>	
		12.50-13.45 <i>Lunch</i>	
		13.45-14.30 <b>Plenary S1</b>	
		<p><b>E. Mc Carney</b>-Development of unilateral NMR for measuring meat eating qualities in the lab, in the processing plant, and on the farm</p>	
		14.30-15.45 <b>Communications S1   Chair: John van Duynhoven</b>	
		<p><b>U. Mavlanov</b>-Rapid benchtop NMR for fatty acid profiling and its application to cooking-induced oil deterioration</p> <p><b>G. Pagès</b>-On the challenge to analyzing CEST-MRI images in fruits</p> <p><b>D. Topgaard</b>-Phosphorous in seed-based food products monitored by parallel acquisition <sup>1</sup>H-(<sup>13</sup>C, <sup>31</sup>P) CP MAS HETCOR</p>	
		15.45-15.55 <b>Sponsor Communications: SIAD</b>	
		15.55-16.25 <i>coffee break</i>	
		16.25-17.15 <b>Communications S1   Chair: Laura Ruth Cagliani</b>	
		<p><b>A. Afrough</b>-Determining Phases of Lactose and Sucrose in Foods by <sup>13</sup>C Magnetic Resonance Spectroscopy</p> <p><b>C. Ingallina</b>-From the Shelf to the Spectrum: Exploring Chemical Variability in Processed Tomato Products Using NMR</p>	
09/06/2026			
Tuesday			
12.00-13.30	Registration		
13.30-13.45	Institutional welcome		
13.45-14.30 <b>Plenary S2</b>			
13.45-14.30	<p><b>P.J. Basser</b>-Probing structure-transport relationships in complex, heterogeneous soft matter: tissues and foods</p>		
14.30-15.45 <b>Communications S2   Chair: Diana Bernin</b>			
14.30-15.45	<p><b>S. Kuijpers</b>-MRI mapping of high-moisture extrudates of soy protein concentrate.</p> <p><b>R. Ramesh</b>-Quantifying anisotropic structure formation in extrudates from novel protein sources using cryo-MRI techniques</p> <p><b>E. Ilhan</b>-From asymmetric to plug-like flow: resolving gastric structuring in Pickering emulsions by Flow-MRI</p>		
15.45-16.15 <i>coffee break</i>			
16.15-17.05 <b>Communications S2   Chair: Jean-Marie Bonny</b>			
16.15-17.05	<p><b>F. Aiello</b>-Unveiling the digested metabolome of Fenugreek (<i>Trigonella foenum-graecum</i> L.) seeds via NMR Spectroscopy</p> <p><b>U. Mikac</b>-NMR Spectroscopy of Roasting-Induced Chemical Transformations in Coffee</p>		

# PROGRAMME

11/06/2026		12/06/2026	
Thursday		Friday	
Plenary S3		Plenary S4	
9.00-9.45	P. Gowland-The fate of food in human body	9.00-9.45	K. Anderssen-Recent Applications of Benchtop NMR in Food Science
9.45-11.25	<b>Communications S3</b>   Chair: Maria Guðjónsdóttir  E. Wafula-Influence of avocado seed starch on the molecular dynamics of set yoghurts X. Falourd-How solid-state NMR provides new insights into the reversible swelling of starch granules I.M. Riley- Low-field benchtop $^1\text{H}$ MAS NMR spectroscopy: Exploring its applications to (semi-)solids in food research M. Mendigorri-Water Binding in Dairy Matrices	9.45-11.00	<b>Communications S4</b>   Chair: Roberto Consonni  L. Jakobsen-What water tells us: proton mobility, texture and sensory quality in sous vide cooked peas S. Renzetti-Plasticizing properties of sugars and soluble dietary fibres revealed by high-throughput viscosity and time-domain $^1\text{H}$ NMR relaxometry G. Di Matteo-Exploring Benchtop NMR in Food Science: Key Findings from a Review
11.25-11.55	<i>coffee break</i>	11.00-11.30	<i>coffee break</i>
11.55-12.45	<b>Communications S3</b>   Chair: Francesco Capozzi  N.E. Cifte-Relaxometric Characterization of Fermented Dairy Products: Yogurt and Kefir T. Czaja-Low-Field NMR for Rapid Biogas Feedstock Characterization	11.30-12.20	<b>Poster presentation and award</b>
12.45-13.00	<b>Poster session</b>	12.20-12.50	<b>Conclusions &amp; Lunch</b>
13.00-13.50	<i>Lunch</i>		
13.50-14.35	<b>Plenary S4</b>  A.L. Rollet-NMR relaxometry to probe water dynamics		
14.35-15.50	<b>Communications S4</b>   Chair: Corinne Rondeau-Mouro  O.Tas-Investigation of Mechanical Pressure-Induced Caking in Dairy Powders via NMR Relaxometry D.Kruk-Revealing dynamical and structural properties of dairy products by means of NMR relaxometry Z. Zarai-Advanced FFC-NMR relaxometry for probing molecular dynamics in camel milk systems: Effect of farming practices and Microalgal enrichment		
15.50-16.10	<b>Sponsor Communications: Stelar, Magritek</b>		
16.10-17.00	<i>coffee break and poster session</i>		
20.00	<i>Social Dinner</i>		

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# WELCOME TO MILAN

## About Milan

Milan is one of Italy's main international hubs and one of Europe's most dynamic cities. It is easily accessible from all major European and intercontinental destinations thanks to its well-connected airports, high-speed rail network, and efficient local transportation system.

The city also offers a rich culinary tradition, ranging from classic Milanese dishes to contemporary cuisine and international gastronomy. Visitors can enjoy historic landmarks, world-class museums, and lively neighborhoods, alongside a dynamic urban atmosphere.

Thanks to its central location in Northern Italy and its excellent transport connections, Milan is an ideal starting point for exploring the region and beyond.

## Getting to Milan

### By Air

Milan is served by three main airports:

#### Malpensa Airport (MXP)

Malpensa is Milan's main international airport, located about 50 km from the city center.

- **Train:** The Malpensa Express connects the airport to Milano Centrale, Milano Cadorna, and Milano Porta Garibaldi stations in approximately 40–50 minutes.
- **Taxi:** Fixed-rate taxis are available and take around 45–60 minutes, depending on traffic.

#### Linate Airport (LIN)

Linate is the closest airport to the city center, mainly serving domestic and short-haul European flights.

- **Public transport:** Bus and metro connections link Linate to the city center in about 20–30 minutes.
- **Taxi:** Approximately 20 minutes to the city center.

#### Orio al Serio Airport (BGY – Bergamo)

Primarily used by low-cost airlines, located about 50 km from Milan.

- **Bus:** Direct shuttle buses connect the airport to Milano Centrale in about 50–60 minutes.
- **Taxi:** Travel time varies depending on traffic.

## By Train

Milan is Italy's main railway hub and is well connected to major Italian and European cities.

### Main railway stations:

- **Milano Centrale:** The main long-distance and high-speed train station, with connections to airports and public transport.
- **Milano Porta Garibaldi:** Serves high-speed trains and regional connections.
- **Milano Cadorna:** Connected to Malpensa Airport and regional routes.

High-speed trains (Frecciarossa, Italo) connect Milan with cities such as Rome, Florence, Venice, Turin, and Bologna in a few hours.

## Getting Around Milan

Milan has an extensive and efficient public transportation system.

### PUBLIC TRANSPORT

Milan's public transport network is operated by ATM (Azienda Trasporti Milanese) and includes metro, tram, bus, and trolleybus services. All modes use the same ticketing system, so a single ticket lets you travel across different means of transport within Milan and nearby areas.

- **Metro:** Five metro lines (M1–M5) cover most areas of the city.
- **Trams and buses:** A dense network operates throughout the city and suburbs.
- **Tickets:** Tickets are valid across metro, buses, and trams and can be purchased at stations, kiosks, or via mobile apps. Different ticket options are available, such as Single Ticket (valid for 90 minutes from the first validation), 24-Hour Ticket, 3-Day Ticket or 10-Trip Carnet. **Passengers can also pay directly at metro gates using contactless credit or debit cards by tapping in at the start of the journey and tapping out at the destination station.**
- **Where to buy tickets:** Tickets can be purchased from the automatic machines located in all metro stations or at any authorised resellers. You can also buy a ticket via ATM official app or sending an SMS to 48444.

### TAXIS AND RIDE-SHARING

Taxis are widely available throughout the city. Ride-sharing services also operate in Milan and can be booked via mobile apps.

### WALKING AND CYCLING

The city center is compact and walkable. Bike-sharing and electric scooter services are also available and widely used.

# **MRFOOD 2026**

# **ABSTRACTS OF ORAL PRESENTATIONS**

## NMR spectroscopy in the analysis of dairy products

Pavel Solovyev, Elena Franciosi, Federico Brigante, Iuliia Khomenko, Martina, Moretton, Franco Biasioli, Luana Bontempo

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The very first experiments of using NMR spectroscopy in dairy science began almost 70 years ago [1] from applying early spectrometric devices for determining contents in human milk. As magnet and detection technology advanced, this technique was increasingly applied to a diverse variety of such products including cheeses, butter, milk, yoghurt and many others [2].

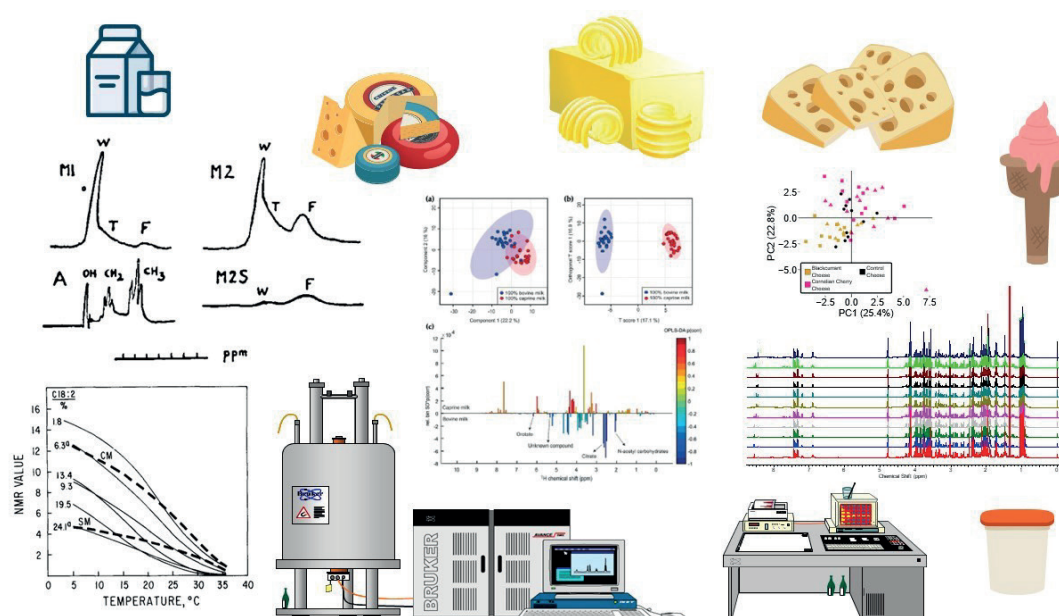


Fig. 1. A collage showing past and present of NMR use in analysis of various dairy products.

For some such matrices the main challenge is the high content of water-soluble oligopeptides, because these produce broad signals that reduce the overall quality of the spectrum. Several solutions exist that alleviate this issue, such as protein removal or special spectral acquisition techniques.

In our laboratory NMR techniques are used to differentiate and characterize a wide selection of foodstuffs, among which dairy products are well represented [3]. This communication will cover this topic and our experience with it in a more detailed way.

### References

- [1] Odeblad E, Westin B. Proton magnetic resonance of human milk. *Acta Radiol.* 1958 Nov;49(5):389-392.
- [2] Eltemur D, Robatscher P, Oberhuber M, Scampicchio M, Ceccon A. Applications of Solution NMR Spectroscopy in Quality Assessment and Authentication of Bovine Milk. *Foods* 2023 Aug;12(17):3240.
- [3] Maestrello V, Solovyev P, Stroppa A, Bontempo L, Franceschi P.  $^1\text{H}$  NMR profiling and chemometric analysis for ripening and production characterization of Grana Padano cheese. *Food Chem.* 2024 Jun;456:139986.