

# Workshop

## Exploring diagnostic probes and procedures beyond Gd(III) for MRI applications

Dipartimento di Scienze e Innovazione Tecnologica, Alessandria, Viale T. Michel 11  
31<sup>st</sup> May 2024

Recently, the use of Gd<sup>3+</sup> chelates as contrast agents (CAs) in MRI has encountered two significant challenges. The first arose, ca. 20 years ago, with the occurrence of nephrogenic systemic fibrosis (NSF) in patients with renal impairment who had undergone contrast-enhanced MRIs, prompting safety concerns regarding Gd<sup>3+</sup> chelates. While regulations restricting CA use in renally compromised patients have mitigated NSF cases, apprehensions regarding safety persist. Additionally, the environmental impact of CAs in MRI is becoming evident. Gd<sup>3+</sup>, typically sequestered in the lithosphere, is now detectable at elevated levels in drinking water sources and marine ecosystems. Addressing these challenges is imperative. This workshop aims to explore potential alternatives and discuss future directions.

### Scientific Programme

- 9.15-9.45** Registration and welcome coffee
- 9.45-10.00** Welcome and opening
- 10.00-10.30** Dario Longo (*IBB-CNR*)  
Diamagnetic CEST-MRI contrast agents: an overview of molecules and of emerging applications
- 10.30-11.00** Daniela Delli Castelli (*UniTO*)  
Addressing a significant hurdle: the low sensitivity of CEST contrast agents
- 11.00-11.30** Alessandro Lascialfari (*UniPV*)  
Magnetic nanoparticles for MRI
- 11.30-12.00** Francesca Baldelli Bombelli (*PoliMI*)  
<sup>19</sup>F-MRI: from probe design to biomedical application
- 12.00-12.30** Giacomo Parigi (*UniFI*)  
Manganese-rich fruit juices as oral MRI contrast agents
- 12.30-13.00** Lorenzo Tei (*UPO*)  
Transition metal-based probes: Mn(II)
- 13.00-14.00** Lunch break
- 14.00-14.30** Alessandro Nucera (*UPO*)  
Transition metal-based probes: Fe(III)
- 14.30-15.00** Fabio Carniato (*UPO*)  
Transition metal-based probes: Cu(II) / V(IV)
- 15.00-15.30** Zsolt Baranyai (*Bracco Research Center*)  
Exploring thermodynamic and kinetic attributes for the design of metal chelates as alternatives to Gd(III)-based probes
- 15.30-16.00** Francesca Reineri (*UniTO*)  
Hyperpolarized molecules for biomedical imaging
- 16.00-16.20** Mauro Botta (*UPO*)  
In the interim: reducing doses by optimizing the efficacy of Gd(III) probes

### Info and Registration

The workshop is promoted by GIDRM and UPO (NODES; Spoke 5). It will take place at the Dipartimento di Scienze e Innovazione Tecnologica (DiSIT), UPO, Alessandria, on 31/05/2024.

**Registration fees:**  
60€ for non-GIDRM members (the fee includes GIDRM 2024 subscription);  
40€ for GIDRM members.

**Contacts:** [alessandria2024@gidrm.org](mailto:alessandria2024@gidrm.org)  
Further details on program and registrations:  
<https://www.gidrm.org/>



### Organizing committee

Mauro Botta, Giovanni B. Giovenzana, Fabio Carniato, Daniela Lalli, Claudio Cassino, Alessandro Nucera, Marco Ricci, Lorenzo Risolo, Fabio Travagin, Maria Ludovica Macchia, Federico Forgiione

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