

# Course for Ph.D. students

## 40<sup>th</sup> cycle (Nov 2024 – Oct 2027)

**Natural eutectic solvents for extractive, formulative and synthetic applications**  
(1 ECTS)

**Prof. Gabriele Costantino**  
*University of Parma*

*Course language: English*

*Scheduling: November, Thur. 28<sup>th</sup> (14-17); December, Thur 12<sup>th</sup> (14-17)*

*The exact date and time will be announced by e-mail and on the website in the page "Active courses" for each session.*

*To attend the course please contact:*

**Prof. Gabriele Costantino ([gabriele.costantino@unipr.it](mailto:gabriele.costantino@unipr.it))**

### Course description

The quest for sustainable preparative, synthetic and extractive approaches to be translated into industrial applications motivates the search for new solvent systems. Natural eutectic solvents are receiving a large interest in this context due to their peculiar features, not only in terms of reduced carbon footprint, biodegradability, reuse and extremely low toxicity, but also in terms of enhanced and even unexpected functional properties.

This course will introduce students to:

- definition and properties of eutectic solvents
- natural eutectic solvents
- analysis and characterization of eutectic solvents
- preparation of eutectic solvents
- limits and opportunities for industrial scale-up
- examples and case studies in pharmaceutical, nutraceutical and cosmetics application