FKITMCMXIX

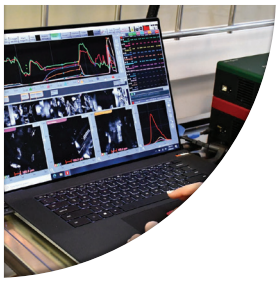
UNIVERSITY OF ZAGREB
FACULTY OF CHEMICAL
ENGINEERING AND
TECHNOLOGY

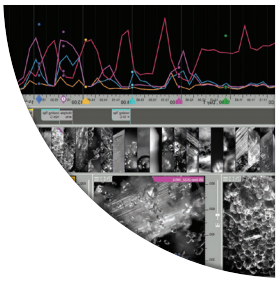
LAM
LABORATORY FOR AUTOMATION & MEASUREMENTS

Process Analytical Technology (PAT)

for Real-Time Control in Pharmaceutical Production

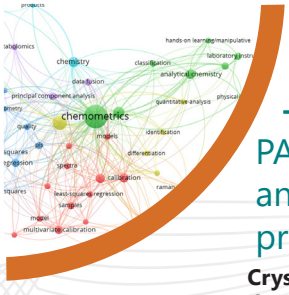
- **Production cycle time reduction**
- **Batch to batch reproducibility**
- **Quality by Control (QbC)**
- **Quality by Design (QbD)**
- **Continuous manufacturing**





Chemometrics & Modeling

- Extraction of chemical information from the data
- Multivariate analysis
- Advanced process control based on a model



CrystAPC

Crystallization Advanced Process Control

PAT & APC for pharmaceutical, chemical and food research laboratories, pilot and production plant

Crystallization system development
Selection of suitable crystallization method for desired properties.

PAT data management
Acquisition and analysis of spectral data. Development of calibration models for critical quality attributes (CQA).

Modelling & advanced process control
Determination of the optimal temperature profile for the desired particle size distribution.

System integration & software development
Software and hardware integration for PAT applications in control strategy.

OPC based laboratory system integration

- Software and hardware elements integrated for the application of PAT
- The interface that communicates with PAT instruments
- Application of PAT for real time control

Education & Training

- **APC-1** Automatic process control
- **APC-2** Advanced process control
- **APC-3** Process diagnostics & Optimization
- **APC-4** Process measurements
- **APC-5** Batch process control & optimization
- **APC-6** Modeling & process simulation

More information on:
lam.fkit.hr

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