

FOCUS SESSION

Mathematics & Industry, a novel approach to R& D

The exceptional growth of computational power of the last decade, together with a growing need for cost/effective product development process, allowed mathematics to gain importance in industrial applications.

With the development and diffusion of modelling and simulations techniques, favoured also by the launch on the market of easier to use multiphysics software tools, a new approach to mathematical support to R& D appeared. While, some years ago, mathematics was considered a part of the R& D process, mostly developed internally by company engineers, more and more, mathematics was seen as stand-alone part of projects. However, as the instruments needed to model and simulate complex processes with the required level of approximation grew in complexity, the support of highly specialized and skilled human resources became necessary. In order to satisfy this highly specialized market segment, it therefore resulted necessary to think of mathematics itself as the product of an industrial process.

The session focuses on this new approach to mathematics in R& D. The session concentrates on both aspects, *i.e.*, the growing need of highly specialized and refined mathematical modelling techniques, to support product/process development and quality control, and the skills made available by new market operators (enterprises or private R& D organizations) that “sell” mathematics for different applications in a new entrepreneurial approach.

Organizers:

Alessandro Speranza

Innovazione Industriale Tramite Trasferimento Tecnologico, Firenze
alessandro.speranza@i2t3.unifi.it

Luca Formaggia

MOX, Dipartimento di Matematica, Politecnico di Milano
luca.formaggia@polimi.it

Roberto Natalini

Istituto per le Applicazioni del Calcolo, IAC/CNR Roma
r.natalini@iac.cnr.it

Mario Primicerio

Dipartimento di Matematica, Università degli Studi di Firenze
mario.primicerio@unifi.it

Fabio Rosso

Dipartimento di Matematica, Università degli Studi di Firenze
fabio.rosso@unifi.it

The oil industry: the Kingdom of modelling

Sebastiano Corraera

RIIN Engineering RD ENI spa EP Division, Via Emilia 1, 20097 San Donato Milanese (MI), Italy

sebastiano.corraera@eni.com

Modeling flow in porous media: applications to solve industrial and environmental problems

Iacopo Borsi, Angiolo Farina, Antonio Fasano, Lorenzo Fusi, Mario Primicerio, Fabio Rosso

Dip. Di Matematica "U. Dini", V.le Morgagni 67/A, 50134 Firenze

[iacopo.borsi, angiolo.farina, antonio.fasano, lorenzo.fusi, mario.primicerio, fabio.rosso]

@math.unifi.it

Alessandro Speranza

Innovazione Industriale Tramite Trasferimento Tecnologico I2T3 Onlus, V.le Morgagni 67/a, 50134 Firenze

alessandro.speranza@i2t3.unifi.it

Industry Informatics and mathematical intuition

Andrea Bertoglio

Centro Ricerche Fiat S.C.p.A, C.so Settembrini 40, Block 1 109/A, 10135 Torino

andrea.bertoglio@crf.it

Modelling for industrial applications at MUSP laboratory

Albertelli Paolo, Bruno Chinè, *Goletti Massimo*, *Grasso Marco*,

Monno Michele, *Rossi Andrea*, *Strano Matteo*

Laboratorio MUSP, Macchine Utensili e Sistemi di Produzione, via Tirotti 9, 29100 Piacenza

bruno.chine@musp.it

Time Seismic Imaging without Velocity Model

Ernesto Bonomi

CRS4, Loc. Piscina Manna Ed. 1, 09010, Pula (CA)

ernesto@crs4.it

Applications of previsional mathematical models in the Smart Cities environment

Luigi Porro

Zeropiu SPA, Via Generale Gustavo Fara 25, 20124 Milano

luigi.porro@zeropiu.it

KKT srl: a spinoff company from the University of Florence dedicated to Operative Research

Alessandro Lori, Mirko Maischberger

KKT srl, c/o IUUF, via Madonna del Piano 6, 50019 Sesto Fiorentino (FI)

alessandro.lori@kkt.it, mirko.maischberger@kkt.it

Fabio Schoen

Dip. Sist. E Informatica, Via Santa Marta 3, 50139 Firenze

fabio.schoen@unifi.it

Mathematical methods for logistics hub operations and goods handling

Marco Bordin

Vitrociset S.p.A. - Corporate R&D Center, Via Tiburtina 1020, 00156 Roma

marco.bordin@vitrociset.it

MOXOFF: Mathematics for innovation

Ottavio Crivaro

Moxoff, via Bonardi 9, Milano

ottavio.crivaro@moxoff.com