



EXPERT WORKSHOP

Fostering current practices to a new generation approach dealing with Domino Effects in the Process Industries

April 16-17th. 2014

**Venue: Aula Magna “Enrico Mattei”
School of Engineering, Alma Mater Studiorum - University of Bologna
Viale Risorgimento 2, 40136 Bologna, Italy**

It is well known that escalation events or so-called domino effects may cause the more severe accident scenarios in the chemical and process industries. A relevant research effort was invested on the subject in the last 15 years. However, due to the difficulties in the assessment of accident escalation and propagation with respect to time and space, to the extremely low frequency of such accidents, and to the increasing complexity of industrial facilities, the analysis, assessment and management of domino scenarios is still an open research problem.

The workshop aims to spread relevant safety and reliability knowledge with respect to domino effects and to this end, three main objectives can be mentioned: defining the state-of-the-art of tools for the assessment of domino effects, discussing the current industrial management practices to deal with domino effects, and identifying further research needs. A discussion with academia, industrial stakeholders, control authorities and software owners is planned to pave the way to the implementation of consolidated research results in current practice. The analysis of further needs, also in the light of progress in advanced assessment techniques as BBN and dynamic risk assessment, will be aimed to identify shared research drivers for further scientific progress on the subject.

DRAFT PROGRAM

Day 1: April 16th, 2014

14.30 Registration of Participants

15.00 Introduction to the Workshop

G. Reniers (TU Delft, NL)

V. Cozzani (University of Bologna, I)

R. Gowland (EPSC)

First Session: State of the Art

**15.10 V. Cozzani (University of Bologna, I):
“State of the art in technical assessment
of Domino Effect”**

**15.30 G. Reniers (TU Delft, NL): “State of the
art in the management of External
Domino Effect”**

**15.50 M. Molag (TNO, NL): “Domino Effect in
the Transportation of Hazardous
Substances”**

**16:10 C. Sklorz (BAM, D): “Large scale Tests
to Assess Escalation caused by Fire”**

16.30 Coffee Break

Second Session: Industry Needs

**16.55 M. Pontiggia (D’Appolonia, I):
“Standard Requirements and Tools for
Domino Effect Assessment”**

**17.15 S. Mahesh (RIVM, NL):
”Preventing Domino Effects on Storage
Sites for Propane”**

**17.35 G. Vercruysse (BASF, B):
“Overview of the Process Safety
Concept, including Domino Effect
Management, at BASF Antwerpen”**

**17.55 P. Hoorelbeke (TOTAL, F):
“Appraisal of Escalation and Domino
Effect in Total”**

18.15 Conclusion of Day 1



Day 2: April 17th, 2014

Third Session: Edge Research

- 9.30 F. I. Khan (Memorial University, CN):
“BBN and Dynamic Approach to Domino Effect Assessment”
- 9.50 E. Salzano (IRC-CNR, I):
“Domino Effect in the framework of NaTech scenarios”
- 10.10 G. Landucci (University of Pisa, I):
“Safety barrier performance assessment in the framework of escalation”
- 10.30 C. Van Gulijk (TU Delft, NL):
“Modeling Domino Effect with Platypus”
- 10.50 Coffee Break

- 11.30 K. Shaba (DNV, UK):
“Escalation and Domino Effect Modeling in Safeti Offshore”
- 11.50 K. Van Wingerden (Gexcon, N):
“FLACS, a dedicated CFD-based tool for design of petrochemical installations aiming at preventing escalation from occurring”

Final Discussion and Wrap-Up

- 12.10 J. Casal (UPC, E):
“Report on new practices and new approaches presented at Workshop”
- 12.30 Discussion
- 13.00 Conclusion of Day 2

Fourth Session: Software and Tools

- 11.10 H. Boot (TNO, NL):
“Assessment of escalation and Domino Effect by the Effects software”

Organized in cooperation with:

The Italian Association of
Chemical Engineering

AIDIC

CISAP

AIDIC Working Group for Safety &
Environment in Process Industry



How to reach the School of Engineering and Architecture in Viale Risorgimento 2, Bologna.

By bus from the railway station

When you exit the station, you have the bus stop in front of you. You have to take the bus number 33. The trip takes about 10 minutes. The direction of travel with respect to the station exit is towards the right. The number 33 bus goes on with the "Viali": you have to get off at the "Liceo Righi" bus stop. You can buy tickets on board of almost all the buses (€1.50). You may also purchase them both at "tobacco shops" that display the big "T" shield outside, at news-stand and TPER points (€1.30).

Walking from the city center

From the city center (Piazza Maggiore), you walk through Via D'Azeglio, since you get to the cross-road between Via de' Carbonesi and Via Farini. Now you go on with Via de' Carbonesi, Via Collegio di Spagna and Via Saragozza. Once you arrive in Piazza di Porta Saragozza, cross it and go on with Via Saragozza. On your left there is Viale Risorgimento, a street with an ascent (on your left there are the Cassarini' Gardens). The School of Engineering and Architecture is located on the top of the ascent.

Taxi Cabs are usually available on call (+39-051-372727) or at the railway station, in Piazza Maggiore and at Porta Saragozza. Taxi travel to/from airport takes 20-25min depending on traffic conditions. BLQ bus connects directly airport and railway station.



**Alma Mater Studiorum
Università di Bologna**

LISES - DICAM



Safety and Security Science - TPM

**REGISTRATION FORM – Expert Workshop DOMINO EFFECT IN THE PROCESS
INDUSTRY - April 16-17th, 2014 – University of Bologna, Bologna, Italy**

The Workshop devoted to the advances and state-of-the-art on domino effects in the process industries is organized by the University of Bologna, Italy, and the Delft University of Technology, the Netherlands with the cooperation of ESRA.

Venue: Aula Magna Enrico Mattei - School of Engineering and Architecture
viale Risorgimento 2, 40136 Bologna

Workshop attendance is free, but registration is mandatory.

The registration is due **before April 8th**

PARTICIPANT DATA

FIRST NAME _____ SURNAME _____

AFFILIATION _____

FULL ADDRESS _____

POSTAL CODE AND CITY _____

COUNTRY _____

E-MAIL _____

A copy of the Registration Form is to be sent by fax + 39 051 209247 or by e-mail at the following address: dicam.masterpog@unibo.it

Alternatively, it may be sufficient to send by e-mail all the data listed in the form.

Please indicate “Domino Workshop” in the subject of the e-mail