



## **Sustainable Design & Arched Structures**

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**Heritage for a Sustainable Future**

REBUS

REversible BUildings for Sustainable and temporary cities

**RAITENHASLACH**  
**28 - 29 November 2024**

## ORGANIZERS

**Roberta Fonti**; TUM

**Thomas Danzl**; TUM

## ORGANIZING SECRETARIAT TUM

Chair of Conservation-Restoration, Art Technologies and Conservation Science  
(RKK)

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# FOREWORD

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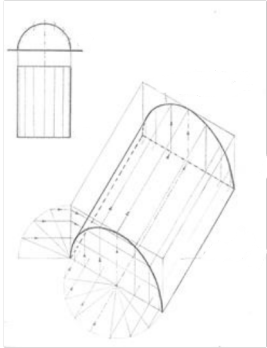
*“The study that I was conducting on the thrust produced by the soil [...] it seems that this is calling for an application (of my studies to the case of) thrusts produced by vaults against piers and by considering (as basic assumption) voussoirs to be polished or able to possess friction. This is aiming to calculate the (right) thickness of a pier [...]” (Couplet, 1729) <sup>1</sup>*

At the beginning of the XVIII century, the study of the design of arched structures and how to assess their stability and sizing of members has been of a great interest to scientists and designers. Nowadays, their thoughts and intuitions are forgotten and the use of more modern means on how to design and build arched structures was causing a big lose of knowledge both in academia and in the professional fields.

The study days Sustainable Design & Arched structures is aiming at urging society at recovery this lost knowledge by watching in retrospect at our past for progressing in the future. This is to revisit sustainable building systems able to respect our planet and reinventing them into a new perspective of architectural forms and structural designs able to reshape our cities of the future.

This initiative has been developed in collaboration with ETH Zurich, Block Group and within the framework of the research project REBUS, REversible BUildings for Sustainable and temporary cities of the European Project EuroTeQ – a prestige project of the European Commission, Research Week learning initiative at the Chair of Conservation-Restoration, Art Technologies and Conservation Science of the Technical University of Munich.

1. Original text (Italian translation):<<L'esame che ho condotto sulla spinta delle terre [...] sembrano richiedere che mi occupi della spinta delle volte contro i piedritti nell'ipotesi di conci lisci o dotati di attrito e che determini gli spessori dei piedritti [...]>>



## PROGRAM

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### 28th November

#### Prototyping and Architecture

Kloster  
Raitenhaslach

### 29th November

#### Numerical Models and Engineering

Kloster  
Raitenhaslach

# 28th November

## Session on Prototyping and Architecture

LOCATION: KLOSTER RAITENHASLACH

TUM SCIENCE AND STUDY CENTER RAITENHASLACH

ROOM: **AULA MAJOR**

### Speakers:

**Alessandro Dell'Endice**; BRG Block Research Group, ETH

**Roberta Fonti**; TUM

**15:00 - 16:30**

Artificial Stones & 3D Printing.

*Towards a new concept of a sustainable use of concrete.*

Break

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**17:00 - 18:30**

Natural Stones & Stereotomy.

*Watching in retrospect at our past for progressing - towards a more sustainable future.*

**18:30 - 19:00**

Discussion

**19:30**

Organized Dinner, served at *Klostergasthof Raitenhaslach*

# 29th November

## Session on Numerical Models and Engineering

LOCATION: KLOSTER RAITENHASLACH

TUM SCIENCE AND STUDY CENTER RAITENHASLACH

ROOM: **AULA MAJOR**

### Speakers:

**Alessandro Dell'Endice**; BRG Block Research Group, ETH

**Roberta Fonti**; TUM

**10:00 - 12:00**

Traditional methods of analysis for arched constructions

**Break**

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**12:00**

Lunch, served in *Room A008*

**13:00 - 14:30**

An innovative tool

*Form finding*

**14:30 - 15:00**

Discussion

**End | Break**





**TUM 2024**

**RAITENHASLACH**  
**28-29 November**