



# Developments in experimental techniques and data management at ELSA

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# Outline



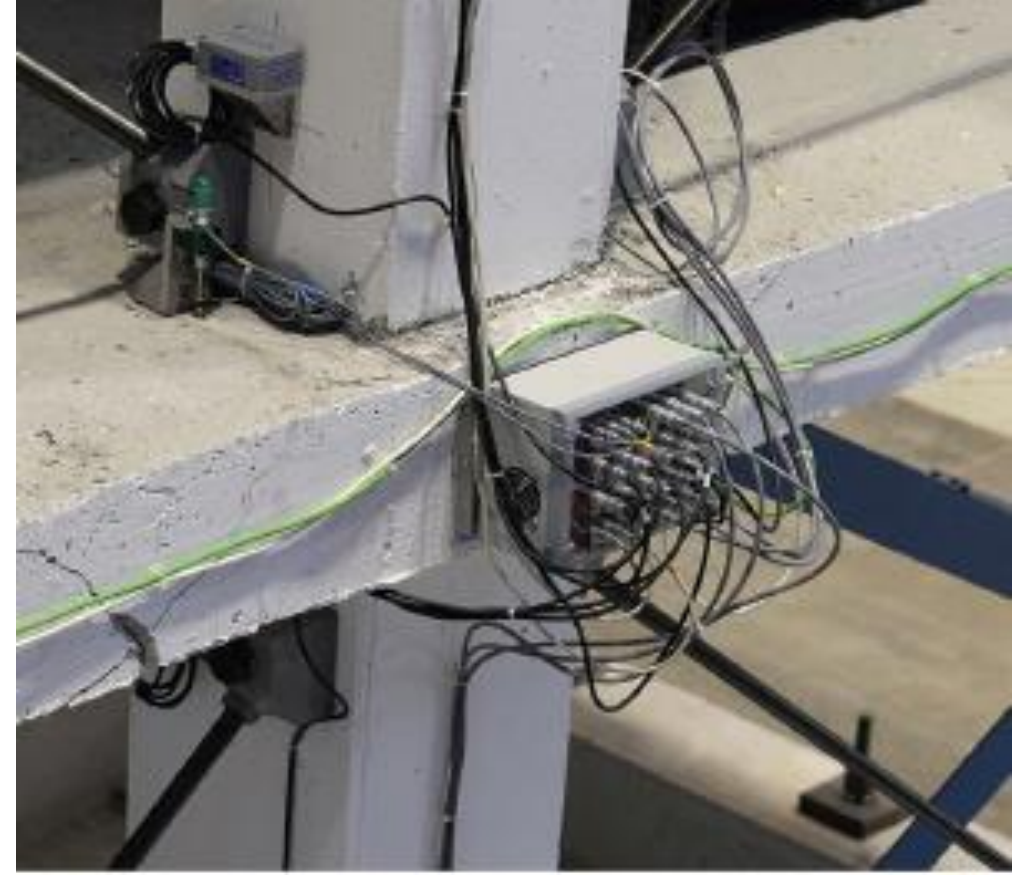
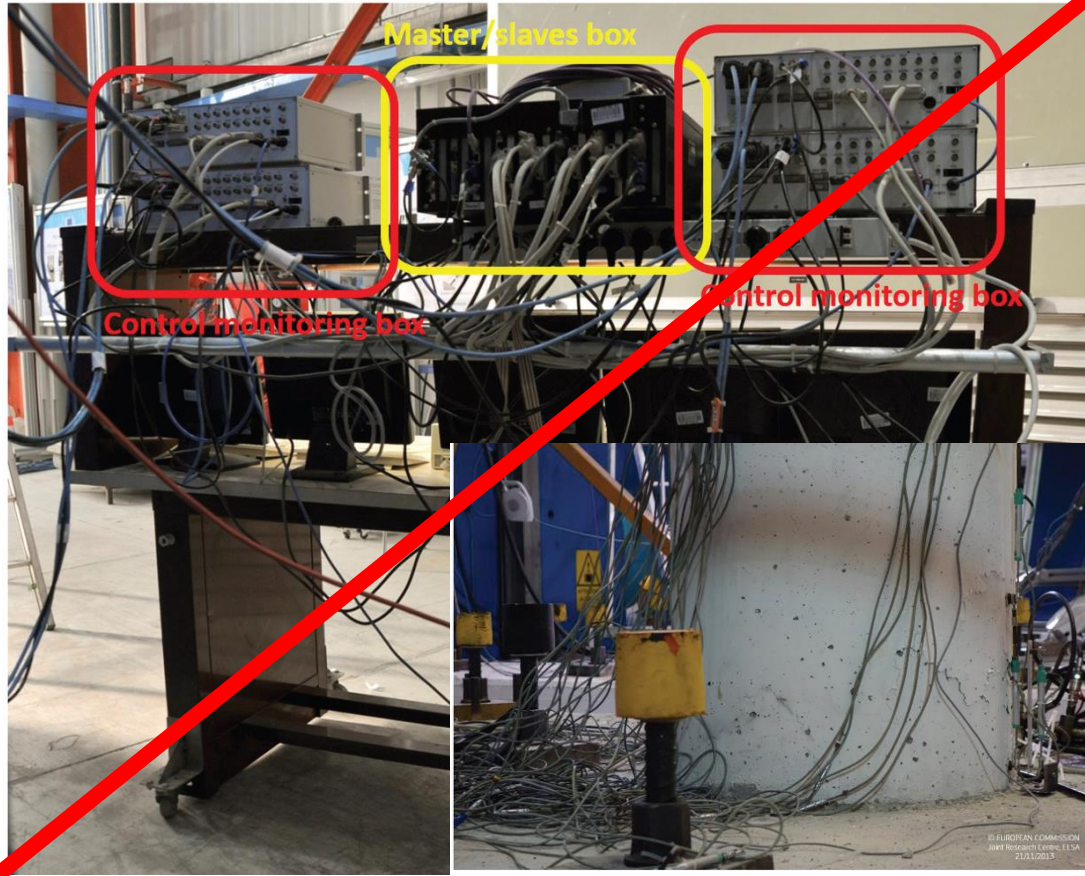
- New approach for control and data acquisition system
- Measuring internal forces in columns
- Data management



# New approach: principles

- Versatility and modularity: adapting test setup to structure
- Components standardization: quality standards, interchangeable
- Robustness: temperature / humidity changes, dust
- Noise-to-signal ratio reduction: reliable hybrid tests with substructuring
- Improvement / simplification of wiring system: correctly transfer and acquire information, simpler check
- Increase number of 'slaves' simultaneously managed by a single 'master' unit

# Implementation for data acquisition system



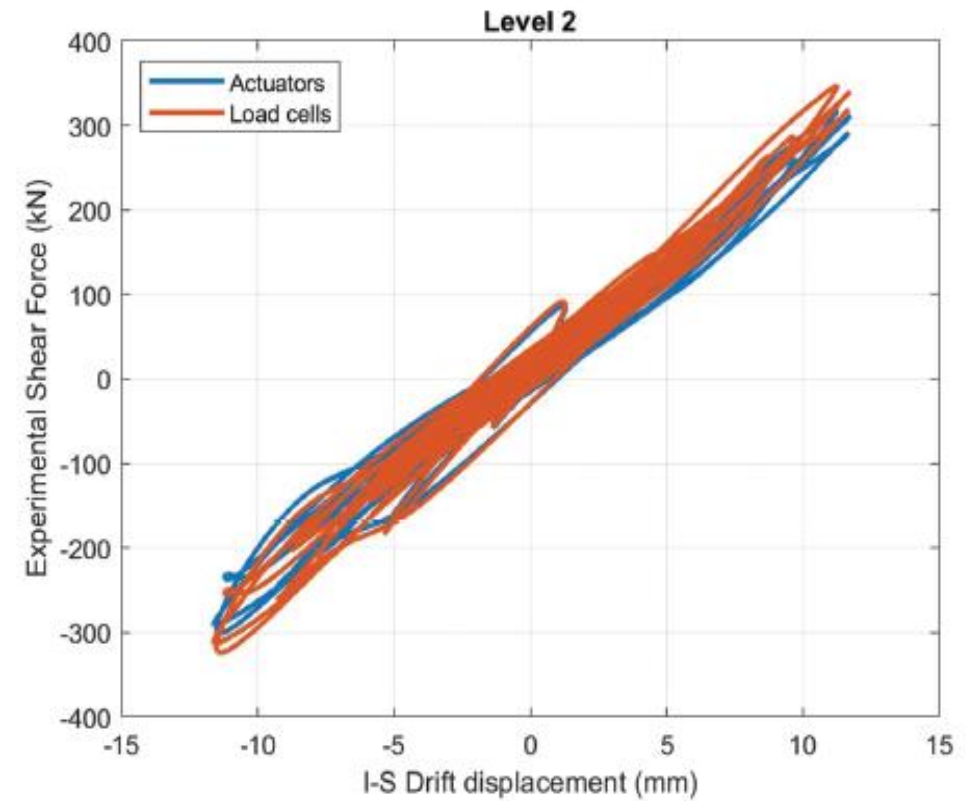
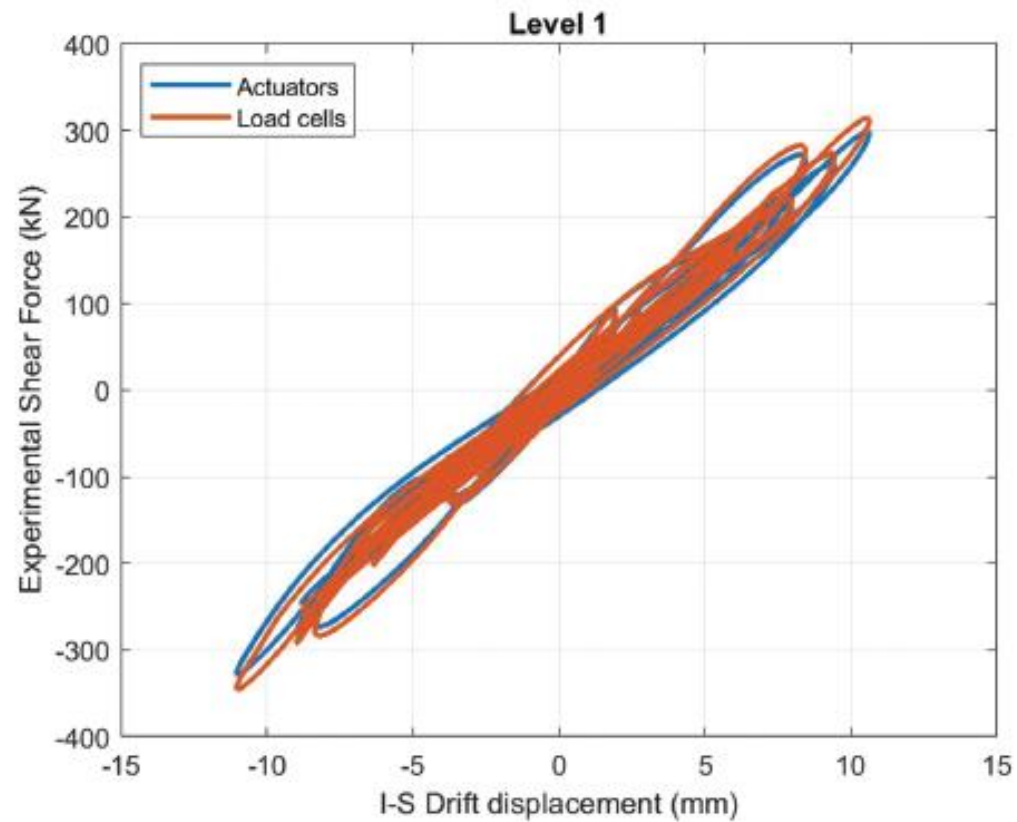


# Measuring internal forces in columns

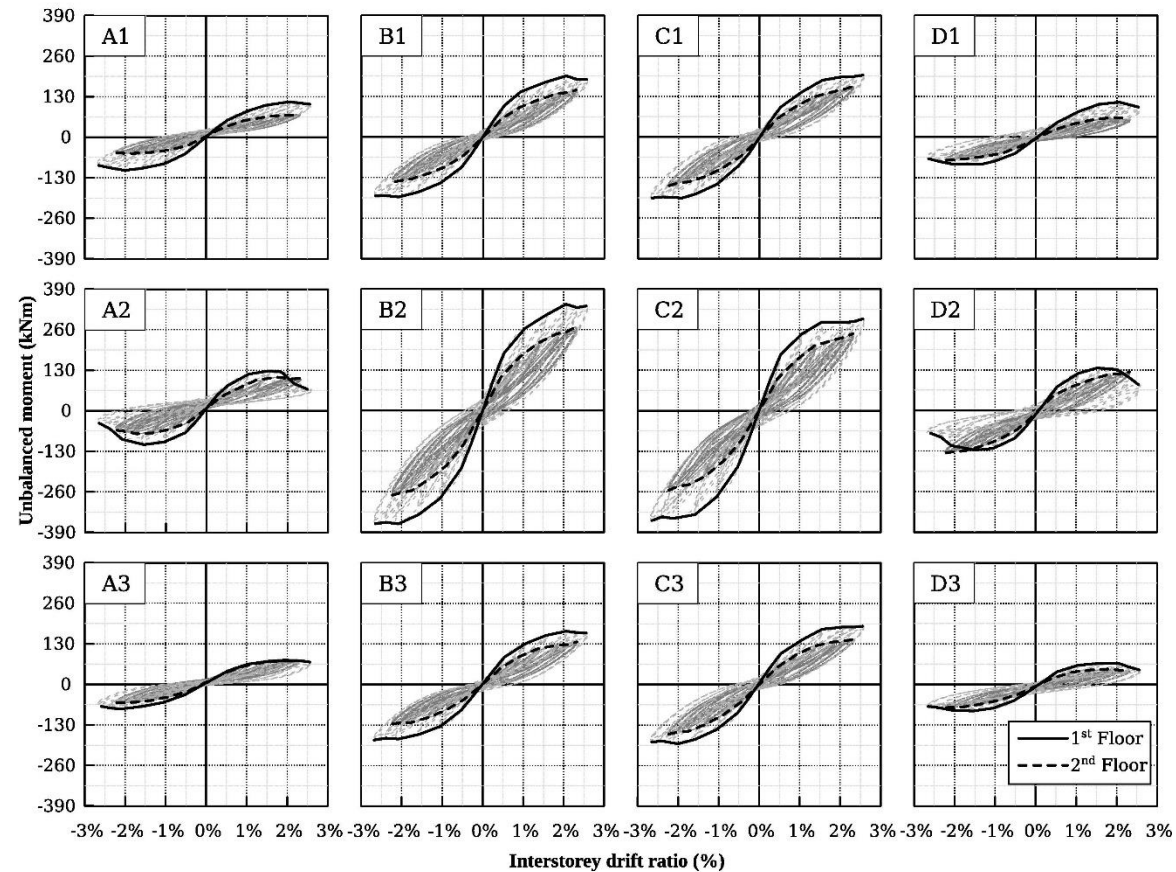


- 3-axial column load cells
- Different size for internal, corner and edge columns
- Calibration in ad-hoc bench able to produce representative loads

# Measuring internal forces in columns



# Measuring internal forces in columns



# Data management: principles

Preservation of test data and documentation

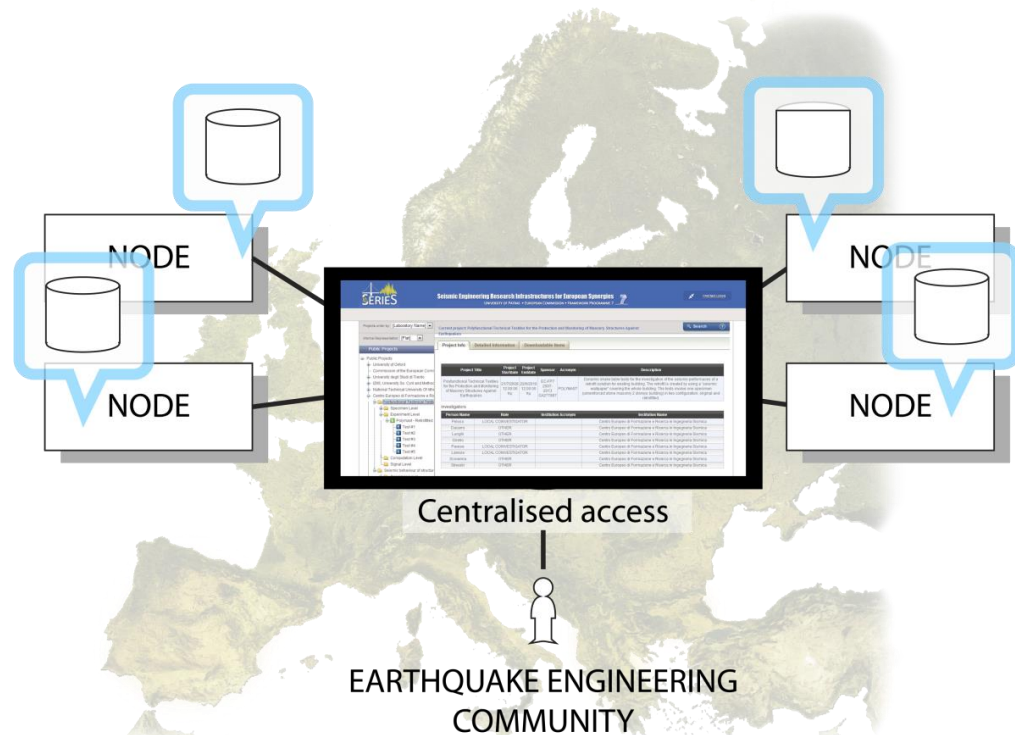
Tools for automated treatment

Tools for automated uploading in a database

Web access




# Data management: distributed database



## Improvements in SERA (UPAT)


- New local nodes with automatic installation
- Graphical user interface
- Automatic uploading
- Upgraded search functionality
- New plot functionality
- Interoperability with other data services

# Data management: ERIES data access portal

 **DATA ACCESS** portal  
in structural and wind engineering

Explore Datasets About

Log in





2017 - 2020

Seismic Eng.

Slab STructural RESponse for Seismic European Design

SERA-SlabSTRESS

RC STRUCTURES

 Dario Coronelli  ELSA Staff

GEM Taxonomy string

[CR+CIP/LDUAL/HEX:2+HBEX:0+HFEX:2+HD:0/BPD/PLFR/IRRE/RSHI/FC+FC1](#)

Keywords

Seismic testing PSD testing Cyclic testing Strengthening and repair Reinforced concrete RC flat slab

Dataset Description

Publication Date

14 May 2024, 09:14

Total Views 37

Publication/Data Paper DOIs

Coronelli, D., Lamperti Tornaghi, M., Martinelli, L., Molina, F.-J., Muttoni, A., Pascu, I. R., Pegon, P., Peroni, M., Ramos, A. P., Tsionis, G., & Netti, T. (2021). Testing of a full-scale flat slab building for gravity and lateral loads. *Engineering Structures*, 243, 112551.  
<https://doi.org/10.1016/j.engstruct.2021.112551>

Ramos, A. P., Isufi, B., Marreiros, R., Coronelli, D., Netti, T., Lamperti Tornaghi, M., Tsionis, G., & Muttoni, A. (2022). Seismic Performance of Strengthened Slab-Column Connections in a Full-Scale Test. *Journal of Earthquake Engineering*, 27(9), 2299–2318.  
<https://doi.org/10.1080/13632469.2022.2112320>

Coronelli, D., Muttoni, A., Pascu, I. R., Ramos, A. P., & Netti, T. (2020). A state of the art of flat-slab frame tests for gravity and lateral loading. *Structural*

# Thank you



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