## PERSONAL INFORMATION

Surname: SOMMA

Name: GIULIANA

Researcher unique identifier(s) **ORCID ID:** 0000-0002-2800-3575

Date of birth: 14/04/1973

Nationality: ITALIAN

## EDUCATION

2002 – **PhD in STRUCTURAL ENGINEERING –** University of Florence (Italy)

1998 – **Master Degree in CIVIL ENGINEERING –** University of Udine (Italy)

## CURRENT POSITION

2005 – Assistant Professor

Polytechnic Dept of Engineering and Architecture, University of Udine (Italy)

**GRANTS**

* ***2023 - Alliance International Catalyst Grants (ALLRP)***

Grant ID: ALLRP 590619 - 23

Title: “Development of composite action and confinement in concrete filled steel tubes”

## RESEARCH PROJECTS (Most Relevant Projects)

* International projects:
* **2024 –2026. title: – SITAR**

Funding Body: INTERREG ITA-AU.

Objective: **Supporting the construction Industry in Transitioning towards eco-friendly practices in the Alpine Region**

Role in Project: Scientific manager for the University of Udine, as partner **(PP).**

* National projects:
* **2024 – 2025 title: – SMART (PNRR\_RETURN)**

Role in Project: Member of the National research group**.**

* **2016 – now title: – DPC/ReLUIS**

Objective: Integrated and sustainable interventions for the redevelopment of existing buildings

Role in Project: Member of the National research group**.**

* **2002 – 2004 title: – Interazione Flessione-Taglioin Travi di Calcestruzzo**

**Normale, ad Alte Prestazioni e Fibrorinforzato**

Funding Body: MIUR.

Role in Project: Member of the Scientific Coordinator University

## SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

2000 – now - almost 100 graduate students, and 1 PhD student.

## TEACHING ACTIVITIES (Selected Teaching Activities)

2006 – now – professor of STEEL CONSTRUCTION , MSc Civil Engineering, University of Udine (Italy)

2011 – now – professor of RC STRUCTURAL ANALYSIS, BSc Architecture, University of Udine (Italy)

2005 – now - Lecturer for RC STRUCTURAL ANALYSIS, BSc Civil Engineering, University of Udine (Italy)

## TRACK RECORD

**SELECTED PUBLICATIONS AS LEAD AUTHOR (10 in the Last 10 yrs.)**

1. Somma G., Vit M. (2023). Experimental investigation of flare groove weld stiffness in lattice girder beams by means of push-out tests. Journal of Constructional Steel Research. Vol. 202, 107780.
2. Somma G., Vit M. (2022). Evaluation of the Bond Stress Transfer Mechanism in CFSTs. International Journal of Civil Engineering. Vol.21(2), pp. 363-378.
3. Somma G., (2022). Expression for calculating the compressive strength of concrete containing Rice Husk Ash. Current Perspectives and New Directions in Mechanics, Modelling and Design of Structural Systems, CRC Press/Balkema (Taylor & Francis Group), ISBN: 978-1-003-34844-3, pp. 1635-1639. DOI: 10.1201/9781003348443.
4. Somma G., (2022). Resistance of axially and eccentrically loaded steel column at high temperature: a simple expression. Current Perspectives and New Directions in Mechanics, Modelling and Design of Structural Systems, CRC Press/Balkema (Taylor & Francis Group), ISBN: 978-1-003-34844-3, pp. 1043-1047. DOI: 10.1201/9781003348443.
5. Pitacco I., Pauletta M., Somma G., Russo G. (2021). On the design of the gate seals of the new Panama Canal locks. Engineering Structures, Vol. 235, 111997.
6. Somma G., Vit M., Frappa G., Pauletta M., Pitacco I., Russo G. (2021). A new cracking model for concrete ties reinforced with bars having different diameters and bond laws. Engineering Structures, Vol. 235, 112026.
7. Pauletta M., Di Marco C., Frappa G., Somma G., Pitacco I., Miani M., Das S., Russo G. (2020). Semi-empirical model for shear strength of RC interior beam-column joints subjected to cyclic loads. Engineering Structures, Vol. 224, 111223.
8. Somma G., Pieretto A. (2016). Confinement effects on high strength concrete under axial load: evaluation of International Standards prescriptions. Materials and Structures, , Vol.49, No.1-2, pp.57-69
9. Somma G., Pieretto A., Dassiè A., (2016). Steel to concrete bond transferring in cfst columns connected to beams through the concrete. Applied Mechanics and Materials, Vol.845, pp.513-520.
10. Somma G., Pieretto A., Rossetto T., Grant D.N. (2015). R.C. beam to column connection failure assessment and limit state design. Materials and Structures, Vol.48, No.4, pp.1215-1231.

**Description of main research results**

The principal research topics regard:

* the behaviour of reinforced concrete beam-column joints under seismic loads and the main results are the identification not only of expressions that would better provide the shear strength in comparison with those obtained from Codes and by other authors, but also the failure type assessment;
* the bond-slip behaviour of the steel-concrete interface in Concrete Filled Steel Tubes (CFST), and the main results are not only the closed-form analytical expression of the transferring length involved in the bond stress transfer mechanism in CFSTs but also the expressions of concrete and steel jacket stresses and strains. The use of this model also resulted in an analytical expression for the calculation of the ultimate load in CFSTs.
* The possibility of use the rice husk hush as a cement replacement in concrete for structural use, and there is the proposal also of an expression for calculating the concrete strength.
* Resistance of steel element under high temperature

## UNIVERSITY OF UDINE (ITALY)

The University of Udine was founded in 1978.

Since its establishment, the University of Udine has rapidly earned a high standing reputation and acquired a position among the leading research universities. Udine was the first university to offer courses such as Preservation and Restoration of the Cultural Heritage, Food Technologies, Management, Engineering and Banking Economics and was one of the first universities in northern Italy to offer Computer Science courses.

Focused on higher education proposing highly qualified, international and up-to-date paths on the latest research results the University of Udine has 14.983 enrolled students (a.y. 2022/2023), 688 professors and researchers and 550 technical and administrative staff (last updating 31/12/2022).

It complies with the Higher Education Quality Assurance system of ANVUR for education and research, introduced in Italy by Law n. 240/2010 and Legislative Decree n.19/2012 in strict adherence to Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). Also, UNIUD obtained the [HR Excellence in Research Award](https://www.uniud.it/it/ricerca/carta-europea-ricercatori-uniud) from the European Commission in May 2016, since then, it has been constantly engaged in various initiatives useful to apply the principles of the "European Charter for Researchers" and the "Code of Conduct for the Recruitment of Researchers".

In addition, to keep our researchers involved with public and private entities, Enterprises, Universities and Research Centers (in different thematic areas) UNIUD joint several [European Technology Platforms](https://www.uniud.it/it/struttura/piattaforme-tecnologiche-europee-e-cluster-nazionali) (8, last update 8/2023) and [National Clusters](https://www.uniud.it/it/struttura/piattaforme-tecnologiche-europee-e-cluster-nazionali) (7, last update 8/2023) the delegates participate in the various meetings and disseminate as much as possible any useful information.