BUSTA 1

Metodo dello spettro di risposta nella valutazione della sicurezza sismica delle strutture

Progetto di un sistema di monitoraggio di una costruzione storica in muratura

Il Rettore: modalità di individuazione, durata del mandato e requisiti

The conservation of historical buildings requires periodic inspections, maintenance, and/or strengthening interventions, resulting in significant costs. The accurate estimate of the structural condition may contribute to optimize the allocation of resources. With the diffusion of innovative technologies of Structural Health Monitoring (SHM), several permanent monitoring systems have been installed in the last decades in historical buildings. This fact has encouraged investigations about methods for the assessment of structural health based on recorded data. The aim of this study is to introduce a time-domain approach for the analysis and interpretation of large amount of data from long-term static monitoring of historical masonry structures.

F.to la Commissione

BUSTA 2

Metodo dell'analisi pushover nella valutazione della sicurezza sismica delle strutture

Sistemi resistenti in strutture in c.a. e acciaio

Personale contrattualizzato e personale in regime di diritto pubblico nelle Università: di chi si parla e relative differenze di status

It is assumed that the recorded signals can be decomposed into two main components: a periodical one, mainly due to environmental actions, and a non-periodical component related to potential variations in the state of conservation of the structure. The analysis of the two components is conducted through specific descriptors (here referred to as "reference quantities") by means of statistical evaluations. Such reference quantities could be used as the roots for the establishment of standardized procedures for data analysis and interpretation. The approach has been applied to analyze data from the Structural Health Monitoring (SHM) system of the Two Towers of Bologna (Italy).

F.to la Commissione

BUSTA 3

Sistemi e metodi di rinforzo strutturale

Metodi di normativa per la valutazione della sicurezza sismica di edifici esistenti

Cosa si intende per autonomia dell'Università

Model calibration can be a very intensive and time-consuming task, especially when dealing with non-linear and large finite element models. The computational effort further increases when multiple specimens have to be calibrated. This is typical of laboratory experiments where several specimens made with the same and/or different constituent materials are tested. This paper proposes a calibration procedure aimed at reducing the computational effort of multiple specimen model calibration.

F.to la Commissione

BUSTA 4

Analisi dei meccanismi locali di edifici in muratura

Azioni sismiche di progetto secondo la normativa vigente

Le varie tipologie di docenti e ricercatori nell'Università

The calibration procedure combines the robustness of a surrogate-assisted evolutionary algorithm with the exploitation of a database collecting the results of the previously calibrated specimens. In this research, the proposed procedure is applied to the calibration of the parameters of a cohesive crack model for fiber-reinforced concrete specimens. The benefit of the proposed procedure is shown by comparing the results with those obtained from the same calibration method but without accounting for the previous results in the calibration of a new specimen.

F.to la Commissione

BUSTA 5

Metodi di analisi e criteri di verifica nei confronti delle azioni sismiche secondo la normativa vigente

Livelli di conoscenza e fattori di confidenza secondo la normativa vigente

Il Senato Accademico e il Consiglio di Amministrazione: cenni sulla composizione e sulle competenze

The seismic vulnerability of unreinforced masonries underlines the importance of developing new methods and materials for the retrofitting of historical structures. Nowadays, two are the most widely diffused strengthening systems for masonry structures, i.e. fiber reinforced polymers (FRP) and fabric reinforced cementitious matrix (FRCM) composites. Despite some degree of effectiveness, FRPs show poor chemical compatibility with masonry supports, that makes them unsuitable for intervention on historical heritage structures. FRCMs frequently consists of a cement-based mortar and, because of this, the cementitious nature of the inorganic matrix cannot ensure the chemical compatibility with the historical masonry substrate; also, being FRCMs composites made out of fiber fabrics embedded in an inorganic matrix, the mono- or bi-directionality characterizing the fiber fabric makes this type of reinforcement ineffective out of the fiber axial direction.

F.to la Commissione

BUSTA 6

Requisiti prestazionali richiesti ai materiali da costruzione

Tecniche di indagine distruttive e non distruttive in situ

Dipartimenti e Facoltà nella Sapienza: Organi e competenze

This paper aims to overcome the listed drawbacks presenting a systematic study on a newly developed lime-based mortar, reinforced with randomly oriented polyvinyl alcohol (PVA) fibers: the lime-based nature of the mortar meets the requirement of chemical compatibility with the historical substrate, that is fundamental for the restoration of heritage buildings, and the random orientation of the PVA fibers makes them globally effective, being the stress state induced by seismic action directionally unknown. Specimens measuring 160 mm × 40 mm × 40 mm characterized by six different fiber contents and two different fiber lengths, namely 6 mm and 12 mm, in addition with plain mortar samples, are tested in three-point-bending configuration to compute both flexural strength and fracture energy. Then, the two broken pieces resulting from the flexural tests, each one measuring 80 mm × 40 mm × 40 mm, are tested in splitting configuration and in compression, and the resulting tensile strength and compressive strength are computed.

F.to la Commissione