



ALLA MAGNIFICA RETTRICE
DELL'UNIVERSITA' DEGLI STUDI DI MILANO

COD. ID: 6909

Il sottoscritto chiede di essere ammesso a partecipare alla selezione pubblica, per titoli ed esami,
per il conferimento di un assegno di ricerca presso il Dipartimento di
_____ Department of Physics _____

Responsabile scientifico: _Prof. Stefano Zapperi_____

[Nome e cognome]

CURRICULUM VITAE

INFORMAZIONI PERSONALI

Cognome	CHEN
Nome	ZHI

OCCUPAZIONE ATTUALE

Incarico	Struttura
PhD Candidate	Faculty of Mechanical Engineering, Technion-Israel Institute of Technology

ISTRUZIONE E FORMAZIONE

Titolo	Corso di studi	Università	anno conseguimento titolo
Laurea Magistrale o equivalente	Aerospace engineering	Nanjing University of Aeronautics and Astronautics	2020
Specializzazione			
Dottorato Di Ricerca			
Master			
Diploma Di Specializzazione Medica			
Diploma Di Specializzazione Europea			
Altro			

ISCRIZIONE AD ORDINI PROFESSIONALI

Data iscrizione	Ordine	Città



LINGUE STRANIERE CONOSCIUTE

lingue	livello di conoscenza
English	Fluent

PREMI, RICONOSCIMENTI E BORSE DI STUDIO

anno	Descrizione premio
2014-2017	Excellent Student Scholarship
2019	National Scholarship for Graduate Students
2020	Excellent Graduation Thesis

ATTIVITÀ DI FORMAZIONE O DI RICERCA

descrizione dell'attività
<p>1. Study the mechanical properties of additively manufactured lattice structures in a parametric way. We loaded the structure from the elastic until large deformations including plastic yielding, hardening and densification. We developed a series of scaling laws including the yielding, hardening and densification. The scaling laws consider the contributions of nodes, could be understood as extensions of Gibson-Ashby laws. Such a set of scaling laws shows a great ability to predict the mechanical properties, validated by experiments.</p> <p>2. Homogenizing the lattices (BCC and Octet) into the plastic domain is less discussed. Different from uniaxial boundary conditions, we simulated lattices with multi-axial proportional loading conditions, to probe the entire 3D yield surface. We checked various models, such as the Miller model, Deshpande-Fleck model. With validations, we choose an appropriate model to describe the multiaxial mechanical behavior of lattices.</p> <p>3. We randomly mix different lattice topologies, leading to superior mechanical behavior. Started from 2D lattices, we study the hardening mechanism from crystalline materials (grain boundary hardening, precipitates and multiphases hardening). In 3D, some topologies like Octet may act as meta-precipitates, while BCC may make the whole structure unstable. The strain localizations happened as a cluster of cells exists, found in FEM, validated by experiments.</p> <p>4. Nanoporous structures could be understood as a network of randomly combined struts. We created the periodical geometries, generated the periodical mesh and deformed FE model periodically, to get the mechanical properties. The properties are highly related to the connectivity, size of the struts, solid phase density.</p>

ATTIVITÀ PROGETTUALE

Anno	Progetto



TITOLARITÀ DI BREVETTI

Brevetto

CONGRESSI, CONVEGNI E SEMINARI

Data	Titolo	Sede
April.2023	MecaNano First General Meeting, Cost Action CA21121	Madrid, Spain
Feb.2024	MecaNano Machine learning workshop, Cost Action CA21121	Brussels, Belgium
May.2024	MecaNano Second General Meeting, Cost Action CA21121	Vienna, Austria
Sep.2024	The 11th International Conference on Multiscale Materials Modeling	Prague, Czech Republic

PUBBLICAZIONI

Articoli su riviste
The extended scaling laws of the mechanical properties of additively manufactured body-centered cubic lattice structures under large compressive strains. <i>Mechanics of Materials</i> , Elsevier, 2024
Multiscale analysis method and experiments for the fracture toughness optimization analysis of carbon nanotube-epoxy composites. <i>Composite Structures</i> , Elsevier, 2022
Comparison of stress evolution under TGO growth simulated by two different methods in thermal barrier coatings. <i>Ceramics International</i> , Elsevier, 2020
Influence of inhomogeneous thermally grown oxide thickness on residual stress distribution in thermal barrier coating system. <i>Ceramics International</i> , Elsevier, 2018

Atti di convegni
Scaling laws and a homogenized plasticity model of additively manufactured lattice structures under large deformations, the 11 th International conference on Multiscale Materials modeling, Prague, 2024
Yield criteria of additively manufactured body-centered cubic lattice structures, MecaNano Second General Meeting, Cost Action CA21121, Vienna, 2024
The extended scaling laws of the mechanical properties of additively manufactured body-centered cubic lattice structures using finite element modelling, MecaNano First General Meeting, Cost Action CA21121, Madrid, 2023
Influence of lattice architecture mixing strategy for improved mechanical properties in additively manufactured Inconel 718 lattices, 19 th European Mechanics of Materials Conference, Madrid, 2024



ALTRE INFORMAZIONI

Le dichiarazioni rese nel presente curriculum sono da ritenersi rilasciate ai sensi degli artt. 46 e 47 del DPR n. 445/2000.

Il presente curriculum, non contiene dati sensibili e dati giudiziari di cui all'art. 4, comma 1, lettere d) ed e) del D.Lgs. 30.6.2003 n. 196.

RICORDIAMO che i curricula **SARANNO RESI PUBBLICI** sul sito di **Ateneo** e pertanto si prega di non inserire dati sensibili e personali. Il presente modello è già precostruito per soddisfare la necessità di pubblicazione senza dati sensibili.

Si prega pertanto di **NON FIRMARE** il presente modello.

Luogo e data: ____Haifa, Israel____, ____13/10/2024____