

## SCHEMA PER LA RELAZIONE ANNUALE DEL DOTTORANDO CICLO 33 Anno 2

- Nome e Cognome **Iman Babaei**
- Dottorato in **INGEGNERIA MECCANICA**
- Dipartimento di appartenenza **DIMEAS**
- Coordinatore **Prof. Luca GOGGIO**
- Tutore **Prof. Giovanni BELINGARDI**
- Area Culturale di Interesse (in Italiano e Inglese)  
Structural Mechanics  
Composites  
Carbon Fiber Reinforced Plastics
- Breve descrizione dell'argomento della tesi o dell'Area Culturale di Interesse (massimo 20 righe, in Italiano e Inglese)  
The title of my PhD is "Structural Testing of Composite Structures" and its main objectives are:
  - Assess the performance of candidate composite materials for a range of temperatures and ageing treatments according to automotive standards;
  - Develop a test program for static and dynamic crush testing of representative crush elements;
  - Test demonstrators using a crash sled.

It is expected that at the end I will develop the experimental test methods required for assessing the in-service performance and energy absorption of representative test structures made from a set of composite materials selected. Initial tests will focus on the quasi-static structural response of these materials to a range of temperatures and ageing treatments according to automotive standards. These will be followed by quasi-static and dynamic crush tests on tube specimens. The development of a virtual testing and design capability for crashworthy composite automotive structures, which is a PhD topic of another student, will require an extensive program of physical testing to validate the numerical tools.

My experimental data will serve as validation of the modelling methodology. A crash sled will be employed for the testing of larger structures which will be manufactured and tested for proof-of-concept studies and final validation of the computational methodology.
- Attività di formazione svolta nell'anno (corsi, seminari, etc.); per ogni attività specificare natura, durata e sede

Type of Training	Course Name	Organizer and Location	Dates	Validated Hours
PhD Course	Composite Materials: Processing, Characterization, Mechanics and Failure	PoliTo, Turin, Italy	27 - 31 May 2019	20
PhD Course	Materials by design - How structure meets functions	PoliTo, Turin, Italy	1 -3 July 2019	Audited
PhD Soft Skills	Writing Scientific Papers in English	PoliTo, Turin, Italy	Jan – June 2019	15
PhD Course	Advanced finite elements for mechanical and multi-field problems	PoliTo, Turin, Italy	Nov 2018	30
Language Course	Lingua italiana III livello	PoliTo, Turin, Italy	Oct – Dec 2018	0
Technical Course	Practical Activities on Carbon and Aramid Fibers	CRF, Orbassano, Italy	13-14 Nov 2018	0
Technical Course	Crashworthiness on composite materials	CRF, Pomigliano, Italy	21-25 Jan 2019	0

- Eventuale partecipazione del Dottorando ad ulteriori attività di ricerca nell'anno (progetti e convenzioni di ricerca)  
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- Eventuale partecipazione del Dottorando ad Attività interne di supporto alla didattica nell'anno (specificare su quali corsi, e se eventualmente il Dottorando sia stato nominato Cultore della Materia)  
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- Eventuali soggiorni presso altri Centri di Ricerca nell'anno  
The researcher will continue working on his PhD at different facilities of Fiat Research Center in Italy
- Eventuali collaborazioni con imprese nell'anno  
The researcher will collaborate with the following companies to finish his research: CRF, Instron, and Picchio.
- Elenco delle Pubblicazioni del Dottorando  
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Torino,

Firma del Tutore



Firma del Dottorando

Il Coordinatore

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