



Materials Education
SYMPOSIA

International

15th International Materials Education Symposium

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This symposium is jointly coordinated by



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15th International Materials Education Symposium

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Poster Overview

#	Poster Presenter, Affiliation, and Title
1	Danchen Zhang* , Cedric Heyen , and Thomas Gries , RWTH Aachen University <i>Bridging the Gap Between Niche Technology and Research Recruitment: The Evolution of a Soft Robotics Gripper</i>
2	Anett Papp*¹ and Dóra Máröldi² , ¹ Széchenyi István University and ² Szimbio Lab <i>BioCraftsmanship – A Holistic Pedagogical Framework for Biodesign and Ecological Literacy</i>
3	Dipankar Choudhury¹ , Andrew Gryguć² , and Rajesh Bhaskaran³ ¹ Ansys part of Synopsys, ² University of Waterloo, ³ Cornell University <i>Teaching Core Concepts and Problem Solving in Engineering through Integrated Virtual Laboratory Exercises</i>
4	Sahil Parag Sura and Kaitlin Tyler* , Synosys Academic and Research Alliances (SARA) Program <i>Standard Tests, New Tools: Teaching Tensile Testing with PyMAPDL-Generated Synthetic Data</i>
5	Hannes Geist¹* , Nicolas Martin² , and Frank Belle¹ , ¹ University of Freiburg and ² Synosys Academic and Research Alliances (SARA) Program <i>Transforming eco-audit tool methodology for circularity and sustainability in engineering design</i>
6	Patricia Munoz-Escalona* and Sepideh Aliasgharia , The University of Manchester <i>Advancing Learning Through Research-Integrated Education in Materials Science</i>
7	Julian Dean^{1*} and Dan A. Allwood^{1,2} , ¹ University of Sheffield, ² FlashyScience <i>FlashyScience - an innovative web-based virtual laboratory for educators in physics</i>
8	Javier Orozco-Messana^{1*} and Ronan Daly² , ¹ Universitat Politecnica de Valencia, ² University of Cambridge <i>Inkjet-Printed Functional Ceramics for sustainability</i>
9	Flavia Papile* and Barbara Del Curto , Politecnico di Milano <i>Materials Selection for Fashion Designers: a preliminary mock-up tool</i>
10	Yinglu Tang , TU Delft <i>Instilling a materials science way of thinking into future aerospace engineers</i>
11	Hudair Samad and Kathryn Jackson* , AMRC University of Sheffield <i>Escaping the Lecture Hall: Enhancing Calculus Engagement in Engineering Education through Gamified Narrative</i>
12	Tamman Kaid and James Ren , Liverpool John Moores University <i>Integrated Approach for Developing Data of Complex Porous Structures at Different Scales for Interdisciplinary Teaching and Training</i>
13	Sergejs Gaidukovs , Riga Technical University <i>Start-up and Innovation curricula as a part of Materiscience program</i>
14	Gerda Gaidukova , Riga Technical University <i>"Outcomes on teaching "Development of Innovative Products and Entrepreneurship" Course for Chemistry and Materials science students</i>
15	Ehsan Ghassemali , Jönköping University <i>Next-generation Minds Exploring Technology in Metals (NetxtMetals)</i>
16	Wahidullah Azizi , Royal Academy of Engineering <i>How Engineering Capacity Improves Safety: Insights from the Global Engineering Capability Review - Second Edition</i>
17	Di Wu^{1*} and Shahin Vassighn² , ¹ New York Institute of Technology, ² Florida International University <i>Material Atlas -Knowledge sharing platform for sustainable coastal construction</i>

Materials Selection for Fashion Designers: a preliminary mock-up tool.

Flavia Papile* and Barbara Del Curto
Politecnico di Milano

The fashion industry is currently facing the need for a profound transformation of its production systems, particularly regarding textile materials and their phases of production, use, and end-of-life (Ellen MacArthur Foundation, 2017; Textile Exchange, 2023). Material selection represents a critical step in this transition, as it directly influences environmental impacts and the implementation of ecodesign strategies (Gwilt, 2014; Clark, 2008; UNEP, 2023). However, in fashion design practice, fabric selection is still largely guided by experiential evaluation of physical samples, making it difficult to establish standardized procedures. As a result, manufacturers typically provide heterogeneous and non-standardized datasheets, which limit transparency and comparability across materials (Niinimäki & Hassi, 2011; Papile & Del Curto, 2025; European Parliamentary Research Service, 2024; Zhang, 2024). To support a sustainable transition within the fashion sector, designers must develop a more systemic understanding of fabric materials, integrating technical properties, environmental parameters, and design requirements. While such decision-support approaches are well established in other industrial sectors (Ashby, 2017), they remain underdeveloped in fashion design, where structured tools for material selection are still lacking (Fletcher & Tham, 2019; IPCC, 2023). This contribution proposes the development of a preliminary mock-up tool aimed at facilitating material selection for fashion design practitioners. The tool seeks to create a coherent interface that links material properties, ecodesign strategies, and the specific needs of fashion design practice. By providing an organized and comparable set of information, it aims to support more informed decision-making processes and foster design practices that are both sustainability-oriented and better aligned with emerging industry standards.

Instilling a materials science way of thinking into future aerospace engineers

Yinglu Tang
TU Delft

How important is material science to future aerospace engineers? As a material scientist and teacher, I have found challenges in teaching materials science in an aerospace engineering faculty at Delft University of Technology. It is desired that our future graduates would be able to ask the right questions about materials to their fellow materials engineer colleagues in a multi-disciplinary work place. How do we design our curriculum and syllabus such that students are well equipped for that? This talk is about my experience of teaching materials for aerospace and space applications as well as integrating lab work to at master level. The integration of materials science teaching into manufacturing and structural modelling is explored in the department of aerospace structures and materials. The question of assessing whether a materials ways of thinking has been developed in the students' framework is also discussed.