

4th International Conference on Biological and Biomimetic Adhesives

18-19th February | 2021
University of Aveiro, Portugal



PROGRAMME

18th February

ZOOM Meeting Room 1

09:00 – 09:15- Welcome and opening session (Central European Time)

João F. Mano, Romana Santos, Vítor M. Gaspar

Plenary Session Chair: Janek Von Byern

09:15 – 10:00 Plenary Presentation – PL1 Chao Zhong

Engineering Smart Living Glues with Synthetic Biology

10:00 – 10:45 Plenary Presentation - PL2 Marleen Kamperman

Bio-inspired coacervate extruded materials

10:45 - 11:15 Break + Poster Session (Slack Online Platform)

11:15 - 13:30 Oral Presentations S1 and S2

Session 1 – Bioinspired Adhesives Designs - [ZOOM Meeting Room 1](#)

Session Chair: Daniel Ruíz-Molina

Session 2 – Adhesives for Healthcare Applications - [ZOOM Meeting Room 2](#)

Session Chair: José das Neves

11:15 – 11:30 S1-O1: Maria Cristina Cringoli

Supramolecular Hydrogel Biomaterial from Short D,L-peptides for Biomimetic Cell Adhesion

11:15 – 11:30 S2-O1: José Miguel Martín-Martínez

Novel polyurethane pressure sensitive adhesives with temperature controlled reversible tack intended for medical patches

<p>11:30 – 11:45 S1-O2: Yong Xu Convergent Synthesis of Diversified Reversible Network Leads to Liquid Metal Containing conductive Hydrogel Adhesives</p>	<p>11:30 – 11:45 S2-O2: Andreia Almeida Natural chitosan-based micelles as a promising strategy on colorectal cancer therapy</p>
<p>11:45 – 12:00 S1-O3: Longjian Xue Bioinspired surfaces for controllable adhesion</p>	<p>11:45 – 12:00 S2-O3: Cláudia Azevedo Biomimetic nanoparticles for enhanced FcRn-mediated delivery across mucosal barriers</p>
<p>12:00 – 12:15 S1-O4: Daniele Liprandi OpenTape: an open tool for peeling simulations</p>	<p>12:00 – 12:15 S2-O4: PP Anand Immunogenicity, allergenicity, antigenicity and expression analysis of wet adhesive mussel foot proteins of Asian green mussel</p>
<p>12:15 – 12:30 S1-O5: Preeti Sharma Bioinspired design and mechanics of a soft probabilistic fastener</p>	<p>12:15 – 12:30 S2-O5: Eugénia Carvalho Biomaterial-based dressings for the sustained delivery of neurotensin – an efficient strategy to improve early diabetic wound healing</p>
<p>12:30 – 12:45 S1-O6: Fahanwi Asabuwa Ngwabebhoh Upcycling of dairy wastes to microbial cellulose: a bioadhesive property based advanced biomaterial</p>	<p>12:30 – 12:45 S2-O6: Thies Büscher Walking leaves – sticky eggs: multifunctional adhesive system of leaf insect eggs (Phasmatodea: Phylliidae)</p>
<p>12:45 – 13:00 S1-O7: Yazhong Bu Self-healing bioadhesives with strong wet adhesive strength and multi-functionality</p>	<p>12:45 – 13:00 S2-O7: Roni Sverdlov Arzi An experimental and theoretical insight into the interaction between nanoparticles and mucosal tissues</p>
<p>13:00 – 13:15 S1-O8: Esra Yuca Self-assembly of microbial functional amyloids on solid surfaces</p>	<p>13:00 – 13:15 S2-O8: Mehdi Vahdati Mechanical Interlocking as an Alternative Tissue Adhesion Strategy</p>
<p>13:15 – 13:30 S1-O9: Laura Mears Bio-adhesion properties of the attachment cement from the tick species Dermacentor marginatus</p>	
<p>13:30 - 14:30 Lunch Break</p>	

ZOOM Meeting Room 1

Plenary Session Chair: Markus Linder

14:30 - 15:15 Plenary Presentation - PL3 Henrik Birkedal
Polyelectrolyte/polyphenol materials: hydrogels and adhesives

15:15 - 16:00 Plenary Presentation – PL4 Nick Aldred
Identification, characterization and recombinant production of adhesive proteins from barnacle larvae

16:00 - 16:45 Plenary Presentation – PL5 Adam Celiz
Adhesion to organs and tissues - Tough to pull off

16:45 - 17:30 Plenary Presentation – PL6 Johnathan Wilker
“Real” biological adhesive proteins and “Fake” proteins that can be adhesives via biomimetics

19th February

ZOOM Meeting Room 1

Plenary Session Chair: Romana Santos

09:00 – 9:45 Plenary Presentation – PL7 Markus Linder
Engineered silk proteins as adhesives for cellulose materials – in search for mechanisms

09:45 – 10:30 Plenary Presentation – PL8 Daniel Ruíz-Molina
Mussel-inspired coatings and films for biological applications

10:30 - 11:00 Break + Poster Session (Slack Online Platform)

11:00 - 13:15 Oral Presentations S3 and S4

Session 3 – Molecular Mechanisms of Adhesion - ZOOM Meeting Room 1
Session Chair: Peter Ladurner

Session 4 – Catechol-based Adhesives - ZOOM Meeting Room 2
Session Chair: Julieta Paez

11:00 – 11:20 *S3-INV1 Invited Oral: Peter Ladurner
Flatworm temporary adhesion in diverse aqueous environments

11:00 – 11:20 *S4-INV1 Invited Oral: Julieta Paez
Mussel-Inspired Photodegradable Hydrogels for Cell Encapsulation and Tissue Adhesion

11:20 – 11:35 S3-O1: Yaqing Chen

11:20 – 11:35 S4-O1: Ana Rita Neves

Self-forming double-crosslinked hydrogels with built-in oxidation button	Synthesis, antibiofilm properties and application into marine coatings of a new eco-friendly polyphenolic compound (MARINE)
11:35 – 11:50 S3-O2: Fan Zeng Bioadhesion in Ascidians	11:35 – 11:50 S4-O2: Bruno Zappone Adhesive properties of adsorbed layers of two recombinant mussel foot proteins with different levels of DOPA and tyrosine
11:50 – 12:05 S3-O3: Guido Raos Polymer-mediated adhesion between heterogeneous surfaces: molecular modeling insights	11:50 – 12:05 S4-O3: Maria Laura Alfieri Enzymatic oxidation of tyramine: a mild, controllable and low-waste mussel-inspired coating technology
12:05 – 12:20 S3-O4: Philip Bertemes Cost-effective draft genomes assembled from ultra-long genomic reads facilitate the identification of giant adhesive proteins	12:05 – 12:20 S4-O4: Tobias Priemel Mussels fabricate vanadium-reinforced adhesives using a microchannel-based secretion system
12:20 – 12:35 S3-O6: Morgane Algrain Localization and characterization of sea star adhesive proteins	12:20 – 12:35 S4-O5: Ana Viana Electrosynthesis and physicochemical properties of biomimetic polycatecholamines and polycatechol coatings
	12:35 – 12:50 S4-O6: Julia Appenroth A mussel inspired hydrogel
12:50 - 14:15 Lunch Break	
14:15 - 15:40 Oral Presentations S5 and S6	
Session 5 – Chemical and Structural Characterization; Special Symposium on Biomimetic Marine-derived Adhesives (co-organizer J.M. Rodrigues) - ZOOM Meeting Room 1 Session Chair: João Rodrigues	Session 6 – Adhesives for Healthcare - ZOOM Meeting Room 2 Session Chair: Seda Kizilel
14:15 – 14:35 *S5-INV1 Invited Oral: Elise Hennebert Sea star-inspired recombinant adhesive proteins self-assemble and adsorb on surfaces in aqueous environments	14:15 – 14:35 *S6-INV1 Invited Oral: Paola Giardina Immobilization of fungal adhesive proteins and their chimeric variants
14:35 – 14:55 *S5- INV2 Invited Oral: João Rodrigues Bioinspired Hydrogels with Self-Healing Ability for Tissue Regeneration	14:35 – 14:55 *S6-INV2 Invited Oral: Seda Kizilel Optimization of Bioadhesive Chitosan for Corneal Alkali Burn Model in Mice

<p>14:55 – 15:10 S5-O1: Katia Amaral Bioinspired patches with high physical fixation power of drug carriers</p>	<p>14:55 – 15:10 S6-O1: Sophie Greistorfer Glowing mucus – Characterisation of the unique defence secretion of Latia neritoides (Gastropoda)</p>
<p>15:10 – 15:25 S5-O2: Jessica Torres Formulation Design of a Recombinant Protein-Based Lung Sealant</p>	<p>15:10 – 15:25 S6-O2: Lisa Nieuwboer Tree frog attachment performance is independent of substrate surface energy: ecological and functional implications</p>
<p>15:25 – 15:40 S5-O3: Luís Ferreira Polydopamine Chemo-Theranostic Nanotherapeutics Screening in Breast Cancer 3D-Tumor Models</p>	<p>15:25 – 15:40 S6-O3: Patrick Steinbauer Single-Molecule Force Spectroscopy Measurement of natural and biomimetic Adhesion Motifs</p>
<p>ZOOM Meeting Room 1</p>	
<p>Plenary Session Chair: Romana Santos</p>	
<p>15:40 – 16:25 Plenary Presentation – PL9 Costantino Creton Stickiness underwater with coacervates</p>	
<p>16:25 – 16:40 Closing session and ICBBA 2021 MDPI Biomimetics Best Photo Award</p>	
<p>17:00 - COST Action CA15216 Managing Committee Meeting</p>	