



Session	Emerging Innovative technologies: Alternative & Unconventional Feedstocks
Title	Enzymatic rubber biorefinery: Turning waste into value
Company	AKIN
Speaker	Ieva Palubeckaite
TRL	TRL 4 - 7
Keywords feedstock (max 2)	Rubber Tires
Keywords technology (max 2)	Biodegradation
Keywords End-Product (max 2)	Recovered Rubber
Abstract:	
Problem: Europe collects ~3.9 million tonnes of end-of-life tyres annually. Approximately half is destined for co-incineration in the cement industry, and the inclusion of recycled rubber in new tyres is not yet standard practice. Vulcanised rubber cannot be easily melted back; unlike aluminium, steel or glass, it has no route home. Solution: AKIN is developing the step that separates shredded rubber into individual materials, virgin-like rubber, recovered carbon black (rCB) and isoprenoid co-products, at the end of an existing recycling line. No new plant. AKIN's proprietary enzyme variants have demonstrated breakdown of polyisoprene at benchtop scale. Work on end-of-life tyre material is ongoing. USP: Existing routes break material apart by destroying its structure: grinding shears it, pyrolysis thermally decomposes it. Enzymes are selective where heat and force are indiscriminate. This is the route to true material recovery. Target Markets: We will integrate at the end of existing tyre recycler and devulcaniser lines, and are looking for additional partners. We are also investigating the markets for our future products, such as compounders and material buyers for virgin-like rubber and rCB, and chemical buyers for isoprenoids. Feel free to reach out for a chat!	