



<b>Session 6</b>	<b>Microbes and gaseous feedstocks</b>
Pitch Title	Scalable production of protein for feed and food (SCP) & bioplastics (PHA) by gas fermentation
Company	Circe Biotechnologie GmbH, AT
Speaker	<b>Maximilian Lackner, David Drew</b>
Keywords feedstock	CH <sub>4</sub> , biogas, synthesis gas
Keywords technology	gas fermentation, cellular agriculture
Keywords End-Product	Single-cell protein (SCP), polyhydroxyalkanoates (PHA)

**Abstract:**

Agriculture, aquaculture, food production and humanity – we must defossilize urgently!

There are superb new alternatives emerging, and fermentation as a process to create alternative protein (replacing meat and fishmeal) and bioplastics (replacing non-degradable, fossil polymers), is the most promising. HOWEVER, this solution still uses primary agricultural products, sugar and starch, as their starter biomass, and as these sugars must be grown, the solution remains chained to farming, pesticides, water and deforestation.

A scalable technology that can use a broad feedstock base is required, and this is gas fermentation. Our technology platform facilitates the use of all types of waste and side streams, via methane from biogas and synthesis gas which we convert into high demand commodity products. There are over twenty players in gas fermentation, but CIRCE stands out, with its ´ coupled gas fermentation process, which uses all the carbon in the system. By chaining an aerobic and anaerobic process together, our complete solution is extremely efficient, carbon neutral, with the potential to become carbon negative.

We operate in our proprietary loop fermenters with our own non-GMO strains and patented downstream processing which ensures a low cost, stable and repeatable product with premium quality assurances.

We have grown 10 fold, four times, in three years and are currently operating a 400litre, 8m high, 12 meter long fermenter. We will now build a coupled 5,000 litre fermentation process, as the final validation step “commercial sampling”. Before the last 50,000 unit - Our last stage, industrialisation, a CIRCE Mega Site, which will produce 20,000 tones of product each year. Carbon neutral protein and bioplastics for a truly sustainable circular economy. Join us now!