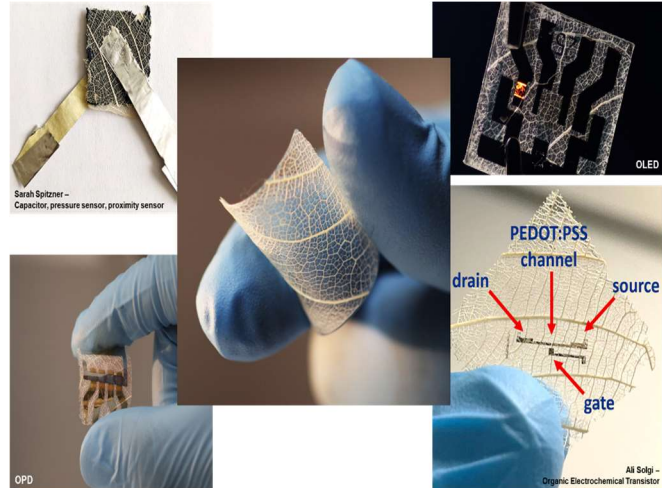


Master thesis - Masterarbeit

## Compostable printed batteries

The electronic industry is one of the most polluting industries worldwide and many companies are looking to make electronics more sustainable. In IAPP, we invented a novel biodegradable platform for sustainable electronics. The substrate is based on natural resources such as cellulose and can be used as the basis for many different applications. In an upcoming publication, we are demonstrating organic sensors, organic transistors and organic light emitting diodes on this biodegradable platform.



Now, we want to increase the positive impact, that this “green” technology can have, to environmentally harmful industries, such as the battery field. Our goal is to make fully compostable batteries without using rare metals. We already demonstrated two different types of batteries, a zinc-bromine battery and a carbon-carbon battery with promising results.

In this master thesis we aim to establish a characterization procedure to better understand the physics and electrochemistry in such batteries. Therefore, we target to first build up the experimental infrastructure and respective analysis scripts. Then, we want to optimize the printed electrode for batterie performance by comparing various battery types. The final part of the thesis should be dedicated to establishing and evaluating recycling and degradation protocols to better understand how to compost/recycle such batteries.

The IAPP is a place where more than 120 physicists, chemists and engineers are working together on virtually all topics related to the revolution of green electronics. Hence, the IAPP provides a perfect platform for the application to interact with other scientists in order to get a broad overview on other research topics on organic electronics.

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